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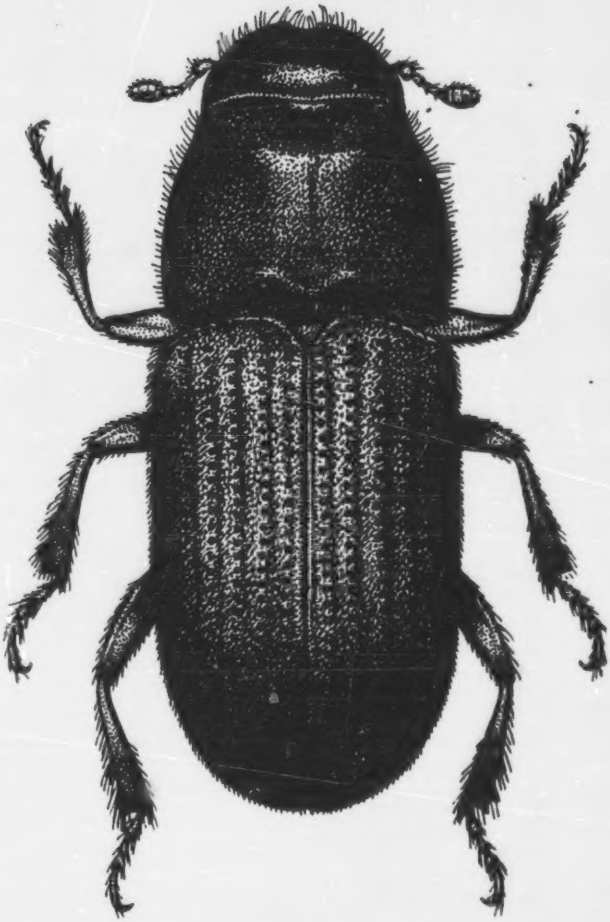
A Catalog of Scolytidae and Platypodidae (Coleoptera), Supplement 1 (1990-1994)



Donald E. Bright
Robert E. Skidmore

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A Catalog of Scolytidae and Platypodidae (Coleoptera), Supplement 1 (1990–1994)

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A Catalog of Scolytidae and Platypodidae (Coleoptera), Supplement 1 (1990–1994)

Donald E. Bright and Robert E. Skidmore

Research Branch
Agriculture and Agri-Food Canada
Ottawa, Canada

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Abstract

This first supplement to the 1992 catalog of the Scolytidae and Platypodidae (Coleoptera) of the world (Wood and Bright. Great Basin Naturalist Memoir 13) updates the taxonomy, distribution, biology, and literature pertaining to these families to the end of 1994. The format of this supplement follows closely that of the 1992 catalog. Each genus and species is listed with its page number from the 1992 catalog: additional information on figures, distribution, hosts, and references relating to one or more of eight subject areas, as in the 1992 catalog, are given. The bibliography included with this supplement lists 1420 references, most published between 1990 and 1994, including additional pre-1990 references missed in the 1992 catalog or the previously published 1987 bibliography. Several 1995 references referring to taxonomy, host plants, or general biology are also included.

New synonymies proposed in the supplement include: *Xyleborus barbatulus* Schedl. 1934 (=*Euwallacea destruens* (Blandford. 1896)); *Xyleborus barbatus* Hagedorn. 1910 (=*Euwallacea destruens* (Blandford. 1896)); *Xyleborus nutans* Schedl. 1942 (=*Cyclorhipidion agnatum* (Eggers. 1923)); *Xyleborus punctatopilosus* Schedl. 1936 (=*Cyclorhipidion perpilosellum* (Schedl. 1935)); *Xyleborus apertus* Schedl. 1939 (=*X. perforans* (Wollaston, 1857)); *Xyleborus cylindrus* Schedl. 1951 (=*X. perforans* (Wollaston. 1857)); *Xyleborus minimus* Schedl. 1955 (=*X. perforans* (Wollaston. 1857)); *Xyleborus difficilis* Eggers. 1923 (=*Xylosandrus morigerus* (Blandford. 1894)); *Xyleborus eccoptopterus* Schedl. 1951 (=*Eccoptopterus spinosus* (Olivier. 1795)); *Cryptoxyleborus dryobalanopsis* Schedl. 1942 (=*C. eggersi* Schedl. 1936); *Eidognathus* Schedl. 1980; *Gnathostactus* Schedl. 1980; *Gnathoxylenus* Schedl. 1980 (=*Gnathotrupes* Schedl. 1951) and *Gnathotrichus frontalis* Schedl. 1972 (=*Gnathotrupes fimbriatus* (Schedl. 1955)).

New combinations proposed in this supplement include: *Xylechinosomus paranaensis* (Schönherr), from *Ptelebius*; *Hyledius nanus* (Browne), from *Phloeosinus*; *Hyledius kesiyae* (Browne), from *Phloeosinus*; *Premnobius adjunctus* (Eggers), from *Coptoborus*; *Cryptoxyleborus micrographus* (Schedl), from *Webbia* and *Cryptoxyleborus simplex* (Schedl), from *Webbia*.

Résumé

Ce premier supplément du *Catalogue of Scolytidae and Platypodidae (Coleoptera)* de 1992 (Wood et Bright, Great Basin Naturalist Memoir 13) rend compte de la taxonomie, de la répartition, de la biologie et de la documentation portant sur ces familles jusqu'à la fin de 1994. Le format du supplément est semblable à celui du catalogue de 1992 : chaque genre et espèce y est relevé, accompagné du renvoi pertinent au catalogue de 1992. On y retrouve en outre de l'information additionnelle sur les figures, la répartition, les hôtes et les références dans une des huit catégories, comme c'est le cas pour le catalogue de 1992. La bibliographie du supplément compte 1420 références de documents principalement publiés entre 1990 et 1994. On y retrouve aussi des références de documents d'avant 1990 qui n'ont pas fait partie, pour une raison ou une autre, de la bibliographie du catalogue de 1992 ou de la bibliographie antérieure de 1987. Sont aussi recensées plusieurs références de 1995 sur la taxonomie, les plantes-hôtes et la biologie.

On y propose de nouveaux synonymes, y compris : *Xyleborus barbatulus* Schedl. 1934 (=*Euwallacea destruens* (Blandford. 1896)); *Xyleborus barbatus* Hagedorn. 1910 (=*Euwallacea destruens* (Blandford. 1896)); *Xyleborus nutans* Schedl, 1942 (=*Cyclorhipidion agnatum* (Eggers. 1923)); *Xyleborus punctatopilosus* Schedl, 1936 (=*Cyclorhipidion perpilosellum* (Schedl. 1935)); *Xyleborus apertus* Schedl. 1939 (=*X. perforans* (Wollaston, 1857)); *Xyleborus cylindrus* Schedl. 1951 (=*X. perforans* (Wollaston. 1857)); *Xyleborus minimus* Schedl, 1955 (=*X. perforans* (Wollaston. 1857)); *Xyleborus difficilis* Eggers. 1923 (=*Xylosandrus morigerus* (Blandford. 1894)); *Xyleborus eccoptopterus* Schedl, 1951 (=*Eccoptopterus spinosus* (Olivier. 1795)); *Cryptoxyleborus dryobalanopsis* Schedl, 1942 (=*C. eggersi* Schedl. 1936); *Eidognathus* Schedl, 1980; *Gnathostactus* Schedl. 1980; *Gnathoxylenus* Schedl, 1980 (=*Gnathotrupes* Schedl. 1951) et *Gnathotrichus frontalis* Schedl. 1972 (=*Gnathotrupes fimbriatus* (Schedl. 1955)).

Parmi les nouvelles associations proposées dans le supplément, on note : *Xylechinosomus paranaensis* (Schönherr), de *Ptelebius*; *Hyledius nanus* (Browne), de *Phloeosinus*; *Hyledius kesiyae* (Browne), de *Phloeosinus*; *Premnobius adjunctus* (Eggers), de *Coptoborus*; *Cryptoxyleborus micrographus* (Schedl), de *Webbia* et *Cryptoxyleborus simplex* (Schedl), de *Webbia*.

Introduction

This is the first supplement to the world catalog of Scolytidae and Platypodidae (Coleoptera) published by Wood and Bright in 1992 (hereafter referred to as the "1992 catalog"). The taxonomy in the 1992 catalog was complete to the end of 1991 and the references under each species and the bibliography were complete to the end of 1989. This supplement updates the taxonomy of these two families to nearly the end of 1995 and includes all known literature references to the end of 1994, plus references to articles missed in the first bibliography (Wood and Bright, 1987) or in the first supplementary bibliography included with the 1992 catalog. Several 1995 references which provide new information on taxonomy, host plants, or biology of a species are also included. A total of 1420 references are included in this supplement.

In the 1992 catalog, we mentioned a few items of special interest and concern. The first of these was a recognition of the alarming increase in the number of species of Scolytidae and Platypodidae that were being introduced into various areas of the world. That concern remains to this day and indeed has increased during the 5-year preparation time of this supplement. The economic impact of these introduced species is already being felt. In North America, a number of species have been introduced or intercepted; the most notable was the recent detection of the European pine shoot beetle, *Tomicus piniperda*, in northeastern United States and adjacent portions of Canada, which resulted in quarantine measures being imposed against transporting nursery stock. The recent attempts to import unworked logs into North America from New Zealand, Chile, and Siberia have raised serious concerns because of the possibility of introduction of pest species and have resulted in legislation to regulate such activity.

The second concern expressed was the lack of any serious, young, taxonomic specialists in the Scolytidae or Platypodidae. That situation seems to be at least partially addressed in that we are aware of several individuals, either currently in graduate school in the United States or working in related fields in other countries, who are developing an interest in the taxonomy of the Scolytidae. The problem of employment for those people presently in graduate school still remains acute and only time will tell if they will be able to continue their research in bark-beetle taxonomy.

A third area of concern which was encountered, but not mentioned, in the preparation of the 1987 and 1992 bibliographies, and which became more strongly evident in the preparation of the present supplement, is the reduction in the funding required by scientific libraries to allow them to keep abreast of the ever-increasing amount of information being produced. Science can only advance by building on the foundations laid by those who have gone before us, and we must have convenient access to what has been published. The failure by libraries to obtain and maintain complete sets of basic periodicals and books has been a constant source of frustration during the course of this project. During the past five years this work has been in progress, numerous journal subscriptions have been cancelled by the Agriculture and Agri-Food Canada libraries, resulting in delays in obtaining information or gaps in the data presented herein. Required books were often not available in Canada due, in part, to funding cuts, again resulting in delays or omissions. An inordinate amount of time has been expended in tracking, locating, and borrowing needed literature.

To paraphrase Zimmerman (1994), "If scholarship in Australia (read Canada) is to be the goal of legislators and administrators of our scientific institutions, as it should be, then legislators and administrators must be convinced of the necessity to supply the tools and facilities required to support scholarship. False economy in scientific library funding over the years continues to be a plague on our house". The most frustrating part of this present effort has been the all too frequent response that the required book or journal is no longer available. In spite of this, the library workers in the Entomology and/or Agriculture libraries of Agriculture and Agri-Food Canada have done their utmost to provide us with the support that was so greatly needed.

Methods

Because of varying publication deadlines and different publication schedules of the various tribes in the 1992 catalog, some of the corrections and additions placed on early manuscripts and/or page proofs could not be included in the final published work. Many of those corrections and additions are included herein.

The present work closely follows the format of the 1992 catalog, but there are a few departures which we hope will make the work more useful. These are noted below.

1. Species are listed by the page number on which the species name appears in the 1992 catalog. Synonyms are listed under their own page number, not their valid species page number.

2. Information under each species is arranged in the same order as in the 1992 catalog, e.g., FIGURES, DISTRIBUTION, HOSTS, NOTES, and REFERENCES.

3. Under FIGURES, some pre-1990 figures are listed that come from references recorded in one of the two previous bibliographies (1987, 1992), so one may have to look in these previous bibliographies for the complete reference.

4. DISTRIBUTION information is arranged by: AFRICA: ...; ATLANTIC ISLANDS: ...; ASIA: ...; EUROPE: ...; NORTH AMERICA: ...; OCEANIA: ... and SOUTH AMERICA: ... Countries (or island groups) within the above regions follow the Fifth Edition of the National Geographic Atlas (1981) and its recent supplements and are listed in alphabetical order. States, provinces, individual islands of island groups, etc., if given in the reference, are listed alphabetically in parentheses following the country name. No attempt has been made to use the new countries established from the former Soviet Union nor from Yugoslavia or Czechoslovakia, unless the data are given in one of the references cited under (**ds**). Some compromises had to be made when assigning a country to a major region, e.g., England and Wales, etc., are included under "EUROPE", Australia and New Zealand are listed under "OCEANIA". "Borneo" is sometimes still used in recording locality data and is repeated herein even though the island contains one country and portions of two other countries.

5. New, previously unrecorded distribution records are in **bold**. No reference is given for these records; they have come from DEB/CNC collection or they refer to specimens seen in the course of other work. The distribution records in regular type are from published records listed either in the references placed under (**ds**) or are distribution records published in one of the literature citations referenced in the 1992 catalog but missed when compiling the data.

6. The spelling of host names has been corrected to the best of our ability; otherwise host records are quoted as they appear in the original reference. No attempt has been made to correct or update these records. In many cases, host records are given without accompaning references. These host records were taken from literature quoted in the 1992 catalog, but the host information was missed or omitted when compiling the 1992 catalog.

7. Under REFERENCES, (**an**) refers to anatomy and related items (see key to subject areas, page 27 in the 1992 catalog). The other subject areas are as in the 1992 catalog and are listed under each species in alphabetical order in **bold** type.

8. Some pre-1990 citations listed under REFERENCES may refer to literature listed in the 1987 bibliography or in the first supplementary bibliography (1992). These two sources plus the bibliography included herein may need to be consulted in order to find the complete citation.

9. All species described since completion of the 1992 catalog are included; the data are recorded following the same arrangement as in the style of the 1992 catalog. They are placed at the end of the generic section, without page numbers.

10. New genera described since completion of the 1992 catalog are also included in the style of the 1992 catalog and are placed at the end of the tribal section, without page numbers.

11. Fossil species or genera are preceded by an "*".

12. The repositories of type specimens are indicated by acronyms as listed below:
    CSIRO: Commonwealth Scientific and Industrial Research Organization, Canberra, A.C.T., Australia.
    DEBC: D.E. Bright Collection, Ottawa, Ontario.
    NFICL: National Forest Insect Collection, Lae, Papua New Guinea.
    NHMW: Naturhistorisches Museum, Wien, Austria.
    MNHN: Muséum National d'Histoire Naturelle, Paris, France.
    GOPC: George O. Poinar Collection, now at Oregon State University, Corvallis, Oregon.
    DZUFP: Departamento de Zoologia da Universidade Federal do Paraná, Curitiba, Brazil.
    PMNS: Prirodovedne muzeum (Natural Sciences), Prague, Czech Republic.
    USNM: United States Museum of Natural History, Washington, D.C.

    Note that the 1992 catalog lists "*Plaumann Collection*" as the location of some types. The present location of this collection is Entomological Collection PE. J. S. Moure of the "Departamento de Zoologia da Universidade Federal do Paraná", Curitiba, Brazil.

13. In the 1992 catalog there are several species of Platypodidae listed with the notation "Roberts 1992 (in press)". These were all validated in 1993 by Roberts. Also, in the Platypodidae section of the 1992 catalog, the reference "Roberts & Morimoto 1986" should be changed to "Roberts & Morimoto 1987".

Bibliography

1. Includes all references from 1990 to the end of 1994, plus references that were missed in either of the two previous bibliographies (1987 and 1992). Several 1995 references are included in order to make the taxonomy as up-to-date as possible.

2. Most literature records come from our computerized literature retrieval service. This is supplemented by library searches for citations missed by the retrieval service, and by examining "Literature Cited" in recent published articles.

3. Journal titles are recorded in full in the format as given by the journal.

4. References include only those that could be considered "primary" literature in the broadest sense. References referring to "Forest Pest Conditions", "Biological Evaluations", etc., are not included since they provide no new information. A few exceptions were made for references deemed to be more informative.

5. An "*" preceding a citation means we have not seen the original reference and the abstract, if included on a computer-generated printout, was not sufficient to allow accurate recording of the data. Most research papers now include an abstract which is

often printed on the computer search record. We have used those abstracts, when necessary, to record information when the original article was unavailable.

6. In the 1987 and 1992 bibliographies, each reference was assigned to one or more of eight subject areas. This proved to be impractical and was a constant source of frustration and errors. Therefore, in the bibliography herein, the assignment of subject areas for each reference was not done. Each reference is, however, assigned to one or more subject areas listed under each species in the taxonomic portion of this catalog supplement.

Host List

A host list similar to the one in the 1992 catalog is incluc [illegible] It only includes hosts listed in this catalog supplement.

New Synonymy Proposed in This Supplement

Several unpublished cases of synonymy were discovered, especially during an extended visit by DEB to the Schedl Collection in Wien in 1991. These are summarized below and are more fully explained in the text of this catalog supplement. The valid species name is included within parentheses.

Page 686	*Xyleborus barbatulus* Schedl, 1934 (=*Euwallacea destruens* (Blandford, 1896))
Page 686	*Xyleborus barbatus* Hagedorn, 1910 (=*Euwallacea destruens* (Blandford, 1896)).
Page 700	*Xyleborus nutans* Schedl, 1942 (=*Cyclorhipidion agnatum* (Eggers, 1923)).
Page 702	*Xyleborus punctatopilosus* Schedl, 1936 (=*Cyclorhipidion perpilosellum* (Schedl, 1935)).
Page 712	*Xyleborus apertus* Schedl, 1939 (=*X. perforans* (Wollaston, 1857)).
Page 723	*Xyleborus cylindrus* Schedl, 1951 (=*X. perforans* (Wollaston, 1857)).
Page 750	*Xyleborus minimus* Schedl, 1955 (=*X. perforans* (Wollaston, 1857)).
Page 794	*Xyleborus difficilis* Eggers, 1923 (=*Xylosandrus morigerus* (Blandford, 1894)).
Page 820	*Xyleborus eccoptopterus* Schedl,1951 (=*Eccoptopterus spinosus* (Olivier, 1795)).
Page 828	*Cryptoxyleborus dryobalanopsis* Schedl, 1942 (=*C. eggersi* Schedl, 1936).
Page 1039	*Eidognathus* Schedl, 1980; *Gnathostactus* Schedl, 1980; *Gnathoxylenus* Schedl, 1980 (=*Gnathotrupes* Schedl, 1951).
Page 1040	*Gnathotrichus frontalis* Schedl, 1972 (=*Gnathotrupes fimbriatus* (Schedl, 1955)).

New Combinations Proposed in This Supplement

Xylechinosomus paranaensis (Schönherr), from *Ptelebius*.

Hyledius nanus (Browne), from *Phloeosinus*.

Hyledius kesiyae (Browne), from *Phloeosinus*.

Premnobius adjunctus (Eggers), from *Coptoborus*.

Cryptoxyleborus micrographus (Schedl), from *Webbia*.

Cryptoxyleborus simplex (Schedl), from *Webbia*.

Unavailable Names

Amphicranus setal Wood, cited in Wood, Stevens, and Lezama (1992:261). Evidently not described or an error.

Xylechinus xylographus, cited in Barriga et al. 1993:85. Error in combination of scientific name.

Liparthrum balachowskyi Pfeffer 1994c(1995). Proposed as a replacement for *L. corsicum* of Balachowsky 1949a:154. Does not fulfil provisions of Articles 11 and 13 in International Code of Zoological Nomenclature.

Acknowledgements

We wish to acknowledge the hundreds of authors throughout the world that have contributed to the knowledge of the Scolytidae and Platypodidae. We especially thank those who sent us copies of their papers.

We thank Dr. Roger Beaver, Chiangmai, Thailand, for providing us with many corrections and for pointing out several omissions in the 1992 catalog. He also provided us with some of his unpublished data, thus helping us to make this supplement as complete and correct as possible. Mr. Hywel Roberts, now of Langley, British Columbia, provided us with many corrections for the Platypodidae section. Dr. Ales Smetana and Dr. Yves Bousquet, Research Branch, Agriculture and Agri-Food Canada, Ottawa, Ontario reviewed a large portion of the manuscript. We are grateful for all these individuals for their assistance.

We sincerely appreciate the assistance of Susan Sherman and Steve Gammon of the Entomology Library, Agriculture and Agri-Food Canada, Ottawa, Ontario, who greatly assisted by making a special effort to obtain copies of numerous journal articles and books that were otherwise not available. This work could not have been completed without their support.

We also wish to thank the two anonymous reviewers of this work for their perseverance in reading the entire manuscript and for offering corrections and/or suggestions. Their efforts are much appreciated.

We also wish to thank Mrs. Evelyn Kidd, Scientific Editor, National Research Council, Ottawa for pointing out our numerous omissions and oversights and for her careful editing of the manuscript.

References Cited

Wood, S.L. and D.E. Bright. 1987. A catalog of Scolytidae and Platypodidae (Coleoptera), Part 1: Bibliography. Great Basin Naturalist Memoir 11. 685 pp.

———. 1992. A catalog of Scolytidae and Platypodidae (Coleoptera), Part 2: Taxonomic Index Volume A & B. Great Basin Naturalist Memoir 13. 1553 pp.

Zimmerman, E.C. 1994. Australian Weevils (Coleoptera: Curculionoidea). Volume III, Nanophyidae, Rhynchophoridae, Erirhinidae, Curculionidae: Amycterinae, Literature Consulted. CSIRO, East Melbourne, Victoria, Australia. 854 pp.

Catalog Of Scolytidae, Supplement 1

The following is a list of significant references that treat the entire family or major portions thereof. Included are references to symposium proceedings, or books in which many species of Scolytidae are mentioned, in addition to references to other categories.

Page 28 **FAMILY SCOLYTIDAE LATREILLE.** Add:

FIGURES: Booth, Cox, & Madge 1990:295 (larvae); Lekander 1968 (larvae).

KEYS: Beaver 1987b (to Tongan species); Lekander 1968:19 (to larvae of Scandinavian genera); Lombardero 1994 (to species of northwestern Spain); Pfeffer 1994a, 1994c (to Palearctic subfamilies, tribes, genera, and species); Wood, Stevens, & Lezama 1991a (to Costa Rica genera); Yin & Huang 1993 (to Chinese species).

REFERENCES: **(an)** Anderson & Berisford 1992; Hobson & Edwards 1992; Lekander 1968; Lombardero 1994; Page 1992; Stock, Amman, & Bentz 1992; Teale & Hager 1992. **(bv)** Agosta 1992; Bordon 1992c; Chararas 1975b; Chararas, Ducauze & Revolon 1978a; Dunn & Potter 1991:427; Gohdazen et al. 1993; Mayer & McLaughlin 1990; Ohm, Lorenz, & Scholz 1994; Raffa, Philips, & Salom 1993; Rhoades 1990. **(cn)** Anonymous 1994c, 1994d; Baksha 1990:16; Berendes 1991; Bordon 1994; Brasse 1991; Büchs 1990; Coulibaly 1993; Croteau 1991; Drew 1992; Dunn & Potter 1991:427; Fernandes 1990; Funke 1991; Gibson 1992:106, 1994; Goheen & Hansen 1993; Graham et al. 1991; Habermehl & Ridder 1993; Hagle & Schmitz 1993; Holland 1994; Jansen et al. 1992; Joermann 1991; Kehr 1991; Keino 1969; Keirle 1981; Keirle, Johnson, & Mugor 1983; Kloskowski 1991; Kokta 1991; Milender 1990; Osipenko 1983; Paine 1994; Paine & Baker 1993; Payne 1989; Pfeffer & Knizek 1989; Pfeil 1991; Prien 1988; Putland 1994; Raffa 1991a; Raffa, Philips, & Salom 1993; Rajput, Gupta, & Lohani 1990; Reindl 1991; Rountree 1989; Safay 1983; Schowalter & Filip 1993a, 1993b; Schwenke 1994; Sharivastava & Bihari 1988; Shaw & Eav 1993; Shea 1994a, 1994b; Shea & Wenz 1994; Sower 1994; Titovsek 1993a; Wilhelm 1991; Wilkening 1991; Wulf 1991a; Wulf & Kehr 1991; Wulf, Pehl, & Berendes 1993; Wulf, Siebers, & Kehr 1993. **(ds)** Beaver 1987b; Booth, Cox, & Madge 1990:292; Burakowski, Mroczkowski, & Stefanska 1992:22–121 (catalog, Polish spp.); Elias 1994; Lombardero 1994; Medler 1980 (checklist, Nigeria spp.); Pfeffer 1994c (monograph, Palearctic species); Pfeffer & Knizek 1989. **(ec)** Avtzis 1991; Büchs 1990; Carrano-Moreira, Marques, & Pedrosa-Macedo 1994; Christiansen & Solheim 1990; Cobb 1992:157; Filip & Schowalter 1993; Goheen & Hansen 1993; Grissell 1983; Hagle & Schmitz 1993; Harrington 1993; Illman 1993; Kannan, Kamanna, & Hanumantha 1992; Kirkendall 1993; Krivosheina 1991; Kubisz 1992; Lorio 1993, 1994a; Milender 1990; Nebeker 1989; Nebeker, Hodges, & Blanche 1993; Paine & Baker 1993; Parmeter et al. 1992; Payne 1989; Pechacek & Kristin 1993; Pfeffer 1994c; Popp & Johnson 1990; Popp, Johnson, & Massey 1991; Schneider 1991; Shaw 1992:157; Stephen et al. 1993; Torres 1994a:4,25; Volz 1990; Yoshikawa & Kasahara 1991. **(hb)** Kirkendall 1993; Krokene 1994; Mamaev 1988; Pfeffer 1994c; Torres 1994a:4,25. **(ms)** Anonymous 1994d; Brechtel 1991; Classen & Scharf 1990; Donaubauer, Schedl, & Egger 1978; Filip &

Schowalter 1993; Funke 1991; Hobson & Edwards 1992; Johnson 1992; Keith 1990; Kiesel 1988; Klusener, Tip, & Brandsma 1991; Krivosheina 1991; Krokene 1994; Lieutier 1991; Lock 1976; Menon 1957; Mori & Fukamatsu 1992; Noshita, Sugiyama, & Yamashita 1991; Ogasawara, Nagaoka, & Kakihara 1990; Preisler 1992; Raffa 1992; Robert 1952; Safay 1983; Schwenke 1994; Seybold 1992; Stewart 1991; Vité & Francke 1992; Wilhelm 1991; Wilkening 1991. **(tx)** Booth, Cox, & Madge 1990:292; Bright 1992a, 1993; Burakowski et al. 1992:22–121 (catalog, Polish spp); Cane 1992; Cavey, Passoa, & Kucera 1994; Lawrence & Britton 1994: 158; Lawrence et al. 1993; Lekander 1968; Lombardero 1994; Page 1992; Pfeffer 1994a, 1994c (monograph, Palearctic species); Seybold 1992; Stock, Ammon, & Bentz 1992.

Subfamily Hylesininae Erichson

Page 28 **HYLESININAE.** Add:

KEYS: Lombardero 1994:100 (to tribes in northwest Spain); Pfeffer 1994c:37 (to tribes in Europe).

REFERENCES: **(tx)** Lombardero 1994:100; Pfeffer 1994c:37.

TRIBE HYLASTINI

Page 29 **Hylastini.** Add:

KEYS: Lombardero 1994:103 (to genera in northwest Spain); Pfeffer 1994c:67 (to Palearctic genera) .

REFERENCES: **(tx)** Lombardero 1994:103; Pfeffer 1994c:67.

Genus **Scierus** LeConte

Page 29 ***annectans*** LeConte. Add:

HOSTS: *Larix laricina, Picea sitchensis.*

REFERENCES: **(ds)** Laplante et al 1991:115; Larochelle 1979:50; Winter 1991a.

Page 29 ***pubescens*** Swaine. Add:

HOSTS: *Pinus contorta.*

Genus **Hylurgops** LeConte

Page 29 **Hylurgops** LeConte. Add:

KEYS: Lekander 1968:43 (to larvae of Scandinavian species); Pfeffer 1994c:68 (to Palearctic species).

REFERENCES: **(an)** Lekander 1968:41. **(ec)** Pechacek & Kristin 1993. **(tx)** Lekander 1968:41; Lombardero 1994:103; Pfeffer 1994c:68.

Page 29 **Hylesinites* Germar (synonym of **Hylurgops** LeConte). Add:

REFERENCES: **(ds)** Carpenter 1992:316.

Page 30 **Hylescierites* Schedl (synonym of **Hylurgops** LeConte). Add:

REFERENCES: **(ds)** Carpenter 1992:316.

Page 30 ***batnensis*** (Brisout). Move to **Hylastes**.

Page 30 *gergeri* Eggers (synonym of ***batnensis*** Brisout). Move to **Hylastes**.

Page 30 ***bonvouloiri*** (Chapuis). Add:
REFERENCES: **(ds)** Pfeffer 1994c:70. **(tx)** Pfeffer 1994c:70.

Page 31 ****electrinus*** (Germar). Add:
REFERENCES: **(ds)** Carpenter 1992:316.

Page 31 ***eusulcatus*** Tsai & Huang. Add:
REFERENCES: **(tx)** Yang & Sun 1991:66.

Page 31 ***glabratus*** (Zetterstedt). Add:
FIGURES: Lekander 1968:44 (larval characters); Pfeffer 1994c:265 (tarsus), 281 (habitus).
DISTRIBUTION: EUROPE: Poland, Slovenia.
HOSTS: *Abies pectinata, Picea abies, Pinus densiflora, P. koraiensis, P. pentaphylla, P. pumila, P. sibirica, P. thunbergii.*
REFERENCES: **(an)** Lekander 1968:44. **(ds)** Burakowski et al. 1992:22; Heliövaara, Väisänen, & Immonen 1991; Johansson, Anderson, & Nilssen 1994; Lee et al. 1990:17; Nilssen 1993; Pfeffer 1994c:69; Siitonen 1990, 1994; Titovsek 1983:393. **(ec)** Dajoz 1990; Siitonen 1994. **(hb)** Koch 1992:153. **(tx)** Burakowski et al. 1992:22; Lekander 1968; Pfeffer 1994c:69.

Page 33 ****granulatus*** (Schedl). Add:
REFERENCES: **(ds)** Carpenter 1992:316.

Page 33 ***incomptus*** (Blandford). Add:
DISTRIBUTION: NORTH AMERICA: El Salvador.

Page 34 ***interstitialis*** (Chapuis). Add:
HOSTS: *Pinus thunbergii.*
REFERENCES: **(ds)** Lee et al. 1990:17.

Page 34 ***longipennis*** (Blandford). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Nuevo Léon**).

Page 34 ***longipilus*** (Reitter). Add:
REFERENCES: **(hb)** Yang 1989c.

Page 35 *likiangensis* Tsai & Huang (synonym of ***longipilus*** (Reitter)). Add:
REFERENCES: **(tx)** Yang & Sun 1991:66.

Page 35 ***palliatus*** (Gyllenhal). Add:
FIGURES: Lekander 1968:158 (larval characters); Lombardero 1994:105, Plate 1 (adult features, aedeagus, gallery); Pfeffer 1994c:301 (gallery).
HOSTS: *Abies sibirica, Larix decidua, L. europaea, L. gmelinii, L. sibirica, Picea abies, P. glehnii, P. jezoensis, P. obovata, P. omorica, P. orientalis, Pinus cembra, P. leucodermus, P. mugo, P. nigra balcanica, P. nigra banatica, P. nigra cevennensis, P. nigra nigra, P. nigra pallasiana, P. peuce, P. pinaster, P. pinea, P. radiata, P. rotundata, P. sibirica, P. strobus, P. sylvestris, P. uncinata.*
REFERENCES: **(an)** Lekander 1968:43. **(bv)** Byers 1992a; Lindelow, Risberg, & Sjodin 1992; Muona & Rutanen 1993; Otte

1989:239; Rauhut, Schmidt, & Schmidt 1993; Schroeder 1991, 1992; Schroeder & Weslien 1994. **(cn)** Trofimov & Lipatkin 1989; Zumr & Stary 1991. **(ds)** Bain 1977b:16; Balazy & Michalski 1962a:198; Burakowski et al. 1992:23; Fernandez Fernandez 1992:526; Gillerfors 1988:43; Gogniat 1991:21; Johansson, Anderson, & Nilssen 1994; Koponen & Nuorteva 1973:26; Lombardero 1994:104; Michalski & Ratajczak 1994; Nilssen 1993; O'Conner, Winter, & Good 1991:403,406; Owen 1993:160; Pfeffer 1994c:69; Schott 1986:57; Siitonen 1990; Titovsek 1983:393. **(ec)** Champion 1917; Eck 1990b; Michalski, Kaczmarek, & Ratajczak 1992b:144; Muona & Rutanen 1993; Nilssen 1993; Otte 1989:239; Ounap 1992; Trojan et al. 1994:91; Wingfield & Gibbs 1991. **(hb)** Balazy & Michalski 1962a:198; Koch 1992:154; Owen 1993:160. **(tx)** Burakowski et al. 1992:23; Cavey, Passoa, & Kucera 1994:8; Lekander 1968; Lombardero 1994:104; Pfeffer 1994c:69.

Page 39 ****pilosellus*** Schedl. Add:
REFERENCES: **(ds)** Schedl 1970c.

Page 39 ***planirostris*** (Chapuis). Add:
DISTRIBUTION: NORTH AMERICA: El Salvador.

Page 39 ***porosus*** (LeConte). Add:
REFERENCES: **(ds)** Parsons et al. 1991:58; Winter 1991a.

Page 40 ***rugipennis*** (Mannerheim). Add:
REFERENCES: **(ds)** Parsons et al. 1991:59; Winter 1991a.

Page 40 ***rugipennis rugipennis*** (Mannerheim). Add:
REFERENCES: **(ds)** Winter 1990.

Page 40 ***rugipennis pinifex*** (Fitch). Add:
REFERENCES: **(cn)** Robertson 1990. **(ds)** Carvalho 1994:274; Dearborn & Donahue 1993:79; Laplante et al. 1991:115; Larochelle 1979:50. **(hb)** Robertson 1990.

Page 42 ***subcostulatus*** (Mannerheim). Add:
REFERENCES: **(ec)** Dajoz 1993.

Genus **Hylastes** Erichson

Page 43 **Hylastes** Erichson. Add:
KEYS: Lekander 1968:39 (to larvae of Scandinavian species); Lombardero 1994:109 (to species in northwest Spain); Pfeffer 1994a:156 (to Central European species), 1994c:70 (to Palearctic species).
REFERENCES: **(an)** Lekander 1968:37. **(cn)** Huuri 1972; Titova 1961. **(ds)** Carpenter 1992:136. **(ec)** Pechacek & Kristin 1993. **(hb)** Titova 1961. **(tx)** Lekander 1968:37; Lombardero 1994:109; May 1993:94; Pfeffer 1994a:156, 1994c:70.

Page 44 ***angustatus*** (Herbst). Add:
FIGURES: Lombardero 1994:111, Plate 1 (adult features, aedeagus, gallery); Pfeffer 1994c:264 (adult).
DISTRIBUTION: EUROPE: Poland, Portugal, Slovenia.
HOSTS: *Larix decidua, L. europaea, Picea orientalis, Pinus elliottii, P. montezumae, P. mugo, P. nigra, P. nigra laricio, P. nigra*

pallasiana, P. patula, P. pinaster, P. pinea, P. pumila, P. radiata, P. rotundata.

REFERENCES: (**bv**) Erasmus & Chown 1994; Otte 1989:239; Rauhut, Schmidt, & Schmidt 1993; Tribe 1992. (**cn**) du Toit 1975; Wingfield & Swart 1994. (**ds**) Burakowski et al. 1992:25; Fernandez Fernandez 1992:526; Gillerfors 1988:43; Gogniat 1991:21; Hansen et al. 1991a:20; Lombardero 1994:110; Michalski & Ratajczak 1994; Pfeffer 1994c:76; Titovsek 1983:393. (**ec**) du Toit 1975; Michalski & Ratajczak 1994; Otte 1989:239. (**hb**) du Toit 1975; Iglesias, Notario, & Barагaño 1989; Koch 1992:153; Tribe 1990a, 1991a. (**tx**) Burakowski et al. 1992:25; Lombardero 1994:110; Pfeffer 1994c:76.

Page 45 ***ater*** (Paykull). Add:

FIGURES: Lombardero 1994:115, Plate 1 (adult features, aedeagus, gallery); May 1993:204 (larval characters); Pfeffer 1994a:157 (sternite 5, pronotum), 1994c:264 (head), 265 (tarsus), 266 (adult features).

DISTRIBUTION: ATLANTIC ISLANDS: Azores. EUROPE: Corsica, Czechoslovakia. NORTH AMERICA: Greenland.

HOSTS: *Cupressus* sp., *Picea excelsa, P. omorika, Pinus cembra, P. muricata, P. nigra, P. nigra laricio, P. nigra nigra, P. pinaster, P. pinea, P. pumila, P. radiata, P. sylvestris, Pseudotsuga* sp.

REFERENCES: (**bv**) Dominik & Litwiniak 1983; Lombardero 1994:114; Rauhut, Schmidt, & Schmidt 1993. (**cn**) Fenton 1951; Karadzic, Knezevic, & Mihajlovic 1990:198. (**ds**) Balazuc 1984:309; Balazy & Michalski 1962a:198; Barriga et al. 1993:84; Borges 1990:116; Burakowski et al. 1992:26; Ciesla 1993:7; Gillerfors 1988:43; Karadzic, Knezevic, & Mihajlovic 1990:198; Lombardero 1994:114; Michalski & Ratajczak 1994; Nilssen 1993; O'Conner, Winter, & Good 1991:405; Pfeffer 1994c:72; Schott 1986:56; Spiller & Wise 1982:154; Titosvek 1983:392. (**ec**) Champion 1917; Dajoz 1990; Galoux 1947e; Michalski & Ratajczak 1994; Michalski, Kaczmarek, & Ratajczak 1992b:148; Trojan et al. 1994:91; Wingfield & Gibbs 1991. (**hb**) Balazy & Michalski 1962a:198; Iglesias, Notario, & Baragaño 1989; Koch 1992:152; May 1993:94. (**tx**) Burakowski et al. 1992:26; Lombardero 1994:114; May 1993:94; Naumann 1993:160; Pfeffer 1994a:157, 1994c:72.

Page 49 ***attenuatus*** Erichson. Add:

FIGURES: Lombardero 1994:124, Plate 1 (adult features, aedeagus, gallery); Pfeffer 1994c:264 (head).

DISTRIBUTION: ASIA: Turkey. ATLANTIC ISLANDS: Azores. EUROPE: Czechoslovakia, Portugal, Slovenia.

HOSTS: *Picea excelsa, Pinus densiflora, P. halepensis, P. nigra, P. nigra austriaca, P. nigra laricio, P. nigra nigra, P. pentaphylla, P. pinaster, P. pinea, P. radiata, P. sylvestris.*

REFERENCES: (**bv**) Lombardero 1994:121. (**cn**) Karadzic, Knezevic, & Mihajlovic 1990:198. (**ds**) Borges 1990:116; Burakowski et al. 1992:27; Gillerfors 1988:43; Gogniat 1991:21; Karadzic, Knezevic, & Mihajlovic 1990:198; Lombardero 1994:121; Pfeffer 1994c:76; Schott 1986:57; Titovsek 1983:393. (**hb**) Koch 1992:153. (**tx**) Burakowski et al. 1992:27; Lombardero 1994:121; Pfeffer 1994c:76.

Page 50 ***brunneus*** Erichson. Add:

FIGURES: Lekander 1968:156 (larval characters); Pfeffer 1994a:157 (sternite 5, pronotum), 1994c:266 (adult features).

DISTRIBUTION: EUROPE: Finland, Ireland, Switzerland.

HOSTS: *Picea abies, P. jezoensis, P. orientalis, Pinus cembra, P. leucodermus, P. nigra nigra, P. rotundata, P. strobus.*

REFERENCES: (**an**) Lekander 1968:39. (**bv**) Lindelow, Eidmann, & Nordenheim 1993; Lindelow, Risberg, & Sjodin 1992; Muona & Rutanen 1993; Rauhut, Schmidt, & Schmidt 1993; Tunset, Nilssen, & Anderson 1993. (**cn**) Zumr & Stary 1991. (**ds**) Burakowski et al. 1992:28; Gogniat 1991:21; Johansson, Anderson, & Nilssen 1994; Koponen & Nuorteva 1973:26; Morris 1993:295; Nilssen 1993; O'Conner, Winter, & Good 1991:403,405; Pfeffer 1994c:73; Siitonen 1990, 1994. (**ec**) Muona & Rutanen 1993; Nilssen 1993; Siitonen 1994; Tunset, Nilssen, & Anderson 1993. (**hb**) Eidmann, Lindelow, & Solbreck 1977; Koch 1992:152. (**tx**) Burakowski et al. 1992:28; Lekander 1968; Pfeffer 1994a:157, 1994c:73.

Page 51 ***cunicularius*** Erichson. Add:

FIGURES: Lekander 1968:157 (larval characters); Pfeffer 1994a:157 (sternite 5, pronotum), 1994c:264 (head, adult), 266 (adult features).

DISTRIBUTION: AFRICA: Algeria. ASIA: Syria. EUROPE: Czechoslovakia, Ireland, Portugal, Slovenia.

HOSTS: *Abies pectinata, Larix decidua, Picea abies, P. obovata, P. orientalis, P. pungens, Pinus halepensis, P.* spp., *Pseudotsuga* sp.

REFERENCES: (**an**) Lekander 1968:40. (**bv**) Eidmann, Kula, & Lindelow 1991; Lindelow 1992a; Lindelow, Eidmann, & Nordenheim 1993; Lindelow, Risberg, & Sjodin 1992; Muona & Rutanen 1993; Rauhut, Schmidt, & Schmidt 1993; Tunset, Nilssen, & Anderson 1993. (**cn**) Eidmann, Linelow, & Solbreck 1992; Lindelow 1992b; Saarenmaa 1990; Zumr & Stary 1991. (**ds**) Balazuc 1984:309; Balazy & Michalski 1962a:198; Burakowski et al. 1992:28; Chakali 1992:508; Gogniat 1991:21; Johansson, Anderson, & Nilssen 1994; Michalski & Ratajczak 1994; Morris 1993:295; Nilssen 1993; O'Conner, Winter, & Good 1991:403,405; Pfeffer 1994c:71; Titovsek 1983:393. (**ec**) Muona & Rutanen 1993; Tunset, Nilssen, & Anderson 1993. (**hb**) Balazy & Michalski 1962a:198; Eidmann, Lindelow, & Solbreck 1977; Koch 1992:153; Lindelow 1992a. (**tx**) Burakowski et al. 1992:28; Lekander 1968; Pfeffer 1994a:157, 1994c:71.

Page 54 ***fulgidus*** Blackman. Add:

DISTRIBUTION: NORTH AMERICA: **Dominican Republic**.

Page 54 ***gracilis*** LeConte. Add:

DISTRIBUTION: NORTH AMERICA: El Salvador.

HOSTS: *Pinus ayacahuite, P. ochoterenai.*

Page 55 ***linearis*** Erichson. Add:

FIGURES: Lombardero 1994:128, Plate 1 (adult features, aedeagus, gallery); Pfeffer 1994c:264 (adult).

DISTRIBUTION: ASIA: Syria, Turkey. EUROPE: Czechoslovakia.

HOSTS: *Pinus canariensis, P. halepensis brutia, P. heldreichii, P. nigra, P. nigra austriaca, P. nigra cevennensis, P. nigra nigra, P. pinea, P. strobus, P. sylvestris.*

REFERENCES: (**ds**) Burakowski et al. 1992:29; Fernandez Fernandez 1992:526; Lombardero 1994:126; Pfeffer 1994c:71. (**hb**) Iglesias, Notario, & Baragaño 1989; Koch 1992:153. (**tx**) Burakowski et al. 1992:29; Lombardero 1994:126; Pfeffer 1994a:156, 1994c:71.

Page 56 ***longicollis*** Swaine. Add:
REFERENCES: (**ds**) Parsons et al. 1991:58.

Page 56 ***macer*** LeConte. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Baja California Norte).
REFERENCES: (**cn**) Goheen & Hansen 1993. (**ec**) Goheen & Hansen 1993.

Page 57 ***nigrinus*** (Mannerheim). Add:
REFERENCES: (**cn**) Bedard et al. 1990; Goheen & Hansen 1993. (**ds**) Bain 1977b:16. (**ec**) Bedard et al. 1990; Bickel 1985; Goheen & Hansen 1993; Jacobi 1992; Parsons et al. 1991:58.

Page 57 ***opacus*** Erichson. Add:
FIGURES: Hoebeke 1994:272 (habitus); Lekander 1968:157 (larval characters); Pfeffer 1994c:264 (head, adult).
DISTRIBUTION: EUROPE: Czechoslovakia, Ireland. NORTH AMERICA: Canada (**Ontario, Quebec**), United States (Maine, New Hampshire, New York, Vermont, West Virginia).
HOSTS: *Larix decidua, Pinus nigra, P. nigra laricio, P. rotundata, P. pinaster, P. pinea, P. sylvestris.*
REFERENCES: (**an**) Lekander 1968:40. (**bv**) Lindelow, Eidmann, & Nordenheim 1993. (**ds**) Balazuc 1984:309; Balazy & Michalski 1962a:198; Burakowski et al. 1992:30; Gogniat 1991:21; Hansen 1990:28; Hansen et al. 1991a:20, 1994:88; Hoebeke 1994; Koponen & Nuorteva 1973:26; Michalski & Ratajczak 1994; Morris 1993:295; Nilssen 1993; O'Conner, Winter, & Good 1991:403,405; Owen 1993:160; Pfeffer 1994c:75; Rabaglia & Cavey 1994; Schott 1986:56. (**ec**) Michalski, Kaczmarek, & Ratajczak 1992b:148; Trojan et al. 1994:91; Wingfield & Gibbs 1991. (**hb**) Balazy & Michalski 1962a:198; Owen 1993:160. (**tx**) Burakowski et al. 1992:30; Lekander 1968; Pfeffer 1994a:157, 1994c:75.

Page 59 ***parallelus*** Chapuis. Add:
FIGURES: Li & Zhou 1980:191 (adult, gallery); Li, Dang, & Shi 1977:191 (adult, gallery).
REFERENCES: (**ds**) Li, Dang, & Shi 1977:72. (**ec**) Li & Zhou 1980:72. (**hb**) Li, Dang, & Shi 1977:72; Li & Zhou 1980:72; Yang 1989c. (**tx**) Yang & Sun 1991:66.

Page 59 ***plumbeus*** Blandford. Add:
DISTRIBUTION: EUROPE: Poland.
HOSTS: *Picea abies.*
REFERENCES: (**ds**) Burakowski et al. 1992:31. (**tx**) Burakowski et al. 1992:31.

Page 60 *obscurus* Chapuis (synonym of ***plumbeus*** Blandford). Add:
REFERENCES: (**ds**) Pfeffer 1994c:75. (**tx**) Pfeffer 1994c:75.

Page 60 ***porculus*** Erichson. Add:
REFERENCES: (**cn**) Klepzig, Raffa, & Smalley 1992:161; Robertson 1990. (**ds**) Dearborn & Donahue 1993:80; Laplante et al. 1991:115. (**ec**) Klepzig, Raffa, & Smalley 1991, 1992:161. (**hb**) Cook & Hain 1992a:167; Robertson 1990; Weber & McPherson 1991.

Page 61 ***ruber*** Swaine. Add:
REFERENCES: (**ds**) Winter 1990, 1991a.

Page 61 ***salebrosus*** Eichhoff. Add:
REFERENCES: (**bv**) Phillips 1990a. (**ds**) Atkinson & Peck 1994:318. (**hb**) Atkinson & Peck 1994:318; Weber & McPherson 1991.

Page 62 ***substriatus*** Strohmeyer. Add:
DISTRIBUTION: ASIA: China.
HOSTS: *Picea schrenkiana.*
REFERENCES: (**ds**) Pfeffer 1994c:75. (**tx**) Pfeffer 1994c:75.

Page 62 ***techangensis*** Tsai & Huang. Add:
REFERENCES: Yang & Sun 1991:66.

Page 62 ***tenuis*** Eichhoff. Add:
FIGURES: Atkinson 1989b:326 (frons).
DISTRIBUTION: NORTH AMERICA: Dominican Republic, **Haiti**.
REFERENCES: (**cn**) Maes 1992:13. (**ds**) Atkinson & Peck 1994:318; Furniss et al. 1992:374. (**hb**) Atkinson & Peck 1994:318; Furniss et al. 1992:374; Weber & McPherson 1991.

Add species: ***batnensis*** Brisout from **Hylurgops**. Add:
DISTRIBUTION: EUROPE: Austria, Slovakia.
HOSTS: *Larix europaea, Pinus nigra austriaca, P. sylvestris.*
NOTES: Pfeffer 1994c:74 (transfers this taxon to **Hylastes**, and recognizes two subspecies, *batnensis* and *anatolicus*).
REFERENCES: (**ds**) Pfeffer 1994c:74. (**tx**) Pfeffer 1994c:74.

Add subspecies: ***batnensis anatolicus*** Knizek and Pfeffer, *in* Pfeffer 1994c(1995):74. HOLOTYPE (sex ?); Südanatolien, Ak Daglari [Turkey], under bark of *Cedrus libani*; Národní Muzeum v Praze (Prague, Czech Republic).
FIGURES: Pfeffer 1994c:266 (adult features).
DISTRIBUTION: ASIA: Turkey.
HOSTS: *Cedrus libani.*
REFERENCES: (**tx**) Pfeffer 1994c:74.

Add species: *gergeri* Eggers (synonym of ***batnensis*** Brisout), from **Hylurgops.**
NOTES: Pfeffer 1994c:73 (treats this taxon as a valid species in **Hylastes**).
REFERENCES: (**ds**) Pfeffer 1994c:73. (**hb**) Koch 1992:153. (**tx**) Pfeffer 1994a:156, 1994c:73

TRIBE HYLESININI

Page 64 **Hylesinini**. Add:
KEYS: Lombardero 1994:130 (to genera in northwest Spain); Pfeffer 1994c:39 (to Palearctic genera).

REFERENCES: (**tx**) Lombardero 1994:130; Pfeffer 1994c:39; Yin, Huang, & Li 1984:58.

Genus **Hylastinus** Bedel

Page 64 **Hylastinus** Bedel. Add:

KEYS: Pfeffer 1994a:159 (to Central European species), 1994c:45 (to Palearctic species).

REFERENCES: (**tx**) Lombardero 1994:132; Pfeffer 1994a:159, 1994c:45.

Page 64 ***achillei*** Reitter. Add:

REFERENCES: (**ds**) Pfeffer 1994c:47. (**tx**) Pfeffer 1994c:47.

Page 64 ***fankhauseri*** Reitter. Add:

DISTRIBUTION: EUROPE: Slovenia.

HOSTS: *Laburnum alpinum, L. anagyroides.*

REFERENCES: (**ds**) Pfeffer 1994c:47; Titovsek 1983:398. (**ec**) Grissell 1983. (**hb**) Koch 1992:156. (**tx**) Pfeffer 1994a:159, 1994c: 47.

Page 64 ***obscurus*** (Marsham). Add:

FIGURES: Aslam 1961:440,459,470; Gustafson & Morrison 1960:99; Lekander 1968:161 (larval characters); Lombardero 1994:133, Plate 1 (adult features, aedeagus, gallery); Pfeffer 1989a:pl.2 (adult), 1994c:264 (adult); White, R.E. 1983:328.

DISTRIBUTION: EUROPE: Czechoslovakia, Greece, Ireland, Netherlands, Poland, Sweden. NORTH AMERICA: United States (West Virginia).

HOSTS: *Adenocarpus complicatus, Cytisus alpinum, C. scoparius, Genista absinthoides, G. florida, Laburnum alpinum, L. anagyroides, Lembotropis nigricans, Sarothamnus scoparius, Trifolium hybridium, T. medium, T.* sp.

REFERENCES: (**an**) Lekander 1968:49. (**bv**) Culik & Weaver 1994. (**cn**) Campbell, Sarazin, & Lyons 1989:364. (**ds**) Balazuc 1984:308; Barriga et al. 1993:84; Burakowski et al. 1992:31; Campbell, Sarazin, & Lyons 1989:364; Hansen et al. 1994:88; Laplante et al. 1991:115; Larochelle 1979:50; Lombardero 1994:132; Morris 1993:295; O'Conner, Winter, & Good 1991:403,405; Pfeffer 1994c:46; Schott 1986:57; Simandl & Zletecka 1987:323. (**ec**) Campbell, Sarazin, & Lyons 1989:364; Grissell 1983; Jin, Morton, & Butler 1992. (**hb**) Campbell, Sarazin, & Lyons 1989:364; Culik & Weaver 1994; Koch 1992:156; Simandl & Zletecka 1987:323. (**tx**) Burakowski et al. 1992:31; Hieke & Pietrzeniuk 1984:317; Lekander 1968; Lombardero 1994:132; Pfeffer 1994a:160, 1994c:46.

Page 67 *kroaticus* Fuchs (synonym of ***obscurus*** (Marsham)). Add:

REFERENCES: (**ds**) Pfeffer 1994c:46. (**tx**) Pfeffer 1994a:160, 1994c:46.

Page 67 ***tiliae*** Semenov. Add:

HOSTS: *Tilia cordata.*

REFERENCES: (**ds**) Pfeffer 1994c:47. (**tx**) Pfeffer 1994c:47.

Genus **Kissophagus** Chapuis

Page 67 **Kissophagus** Chapuis. Add:
KEYS: Pfeffer 1994c:47 (to Palearctic species).
REFERENCES: (**tx**) Lombardero 1994:137; Pfeffer 1994c:47.

Page 68 ***erinacellus*** Wichmann. Add:
DISTRIBUTION: EUROPE: Greece (Kérkira).
HOSTS: *Hedera helix.*
REFERENCES: (**ds**) Pfeffer 1994c:48. (**tx**) Pfeffer 1994c:48.

Page 68 ***hederae*** (Schmidt). Add:
FIGURES: Lombardero 1994:138, Plate 2 (adult features, aedeagus, gallery); Pfeffer 1994c:308 (gallery).
HOSTS: *Hedera colchica.*
DISTRIBUTION: ASIA: Turkey. EUROPE: Czechoslovakia, Poland, Wales.
REFERENCES: (**cn**) Hyman 1992:400. (**ds**) Burakowski et al. 1992:32; Hyman 1992:400; Lombardero 1994:137; Lombardero & Novoa 1994; Pfeffer 1994c:48; Schott 1986:57; Whitehead 1992a:50. (**ec**) Hyman 1992:400. (**hb**) Koch 1992:157. (**tx**) Burakowski et al. 1992:32; Lombardero 1994:137; Pfeffer 1994c:48.

Page 69 ***novaki*** Reitter. Add:
REFERENCES: (**ds**) Pfeffer 1994c:48. (**tx**) Pfeffer 1994c:48.

Page 69 *nuesslini* Reitter. Move to ***hederae*** (Schmidt) as a synonym. Add:
SYNONYMY: Pfeffer 1994c:48.
REFERENCES: (**ds**) Schedl 1961b:187. (**tx**) Pfeffer 1994c:48.

Genus **Pteleobius** Bedel

Page 69 **Pteleobius** Bedel. Add:
REFERENCES: (**tx**) Lombardero 1994:141; Pfeffer 1994c:44.

Page 69 ***kraatzi*** (Eichhoff). Add:
FIGURES: Pfeffer 1994c:284 (elytral declivity).
DISTRIBUTION: ATLANTIC ISLANDS: Canary Islands. EUROPE: Belgium, Czechoslovakia, Netherlands, Poland.
HOSTS: *Ulmus laevis, U. minor.*
REFERENCES: (**ds**) Adam 1992:217; Burakowski et al. 1992:32; Fernandez Fernandez 1992:525; Pfeffer 1994c:45; Zanta & Battista 1989. (**hb**) Koch 1992:156; Zanta & Battista 1989. (**tx**) Burakowski et al. 1992:32; Pfeffer 1994c:45.

Page 70 ***vittatus*** (Fabricius). Add:
FIGURES: Joly 1977:10 (gallery); Lombardero 1994:143, Plate 2 (adult features, aedeagus, gallery); Pfeffer 1994c:264 (adult), 284 (elytral declivity).
DISTRIBUTION: EUROPE: Belgium, Czechoslovakia, Ireland, Netherlands.
HOSTS: *Acer campestre, Alnus* sp., *Fraxinus excelsior, Ulmus glabra, U. laevis, U. minor, U. procera, U. pumila.*
REFERENCES: (**an**) Francke et al. 1989. (**bv**) Francke et al. 1989. (**ds**) Adam 1992:217; Burakowski et al. 1992:33; Lombardero 1994:141; O'Conner, Winter, & Good 1991:404,407; Pfeffer

1994c:44; Schott 1986:57; Zanta & Battista 1989. (**hb**) Koch 1992:156; Zanta & Battista 1989. (**tx**) Burakowski et al. 1992:33; Lombardero 1994:141; Pfeffer 1994c:44.

Genus **Neopteleobius** Nobuchi

Page 72 ***scutulatus*** (Blandford). Add:

HOSTS: *Castanea crenata, Ulmus davidiana japonica.*
REFERENCES: (**cn**) Shiraki 1952. (**ds**) Cho 1957; Ko 1969:277; Shiraki 1952.

Genus **Alniphagus** Swaine

Page 73 ***aspericollis*** (LeConte). Add:

FIGURES: Bright 1976d:201,207 (adult).

Genus **Hylesinus** Fabricius

Page 74 **Hylesinus** Fabricius. Add:

KEYS: Lekander 1968:53 (to larvae of Scandinavian species); Pfeffer 1994a:159 (to Central European species), 1994c:40 (to species in Europe); Yin, Huang, & Li 1984:59 (to Chinese species).
REFERENCES: (**an**) Lekander 1968:52. (**ds**) Yin, Huang, & Li 1984:59. (**tx**) Lekander 1968:52; Lombardero 1994:145; Pfeffer 1994a:159, 1994c:40; Yin, Huang, & Li 1984:59.

Page 74 *Leperisinus* Reitter (synonym of ***Hylesinus*** Fabricius). Add:

REFERENCES: (**ds**) Pfeffer 1994c:42. (**tx**) Pfeffer 1994a:159, 1994c:42.

Page 74 ***aculeatus*** Say. Add:

REFERENCES: (**ds**) Dearborn & Donahue 1993:79; Laplante et al. 1991:115; Larochelle 1979:50. (**ec**) Dearborn & Donahue 1993:79. (**hb**) Weber & McPherson 1991.

Page 75 ***antipodus*** Schedl. Add:

HOSTS: *Olea europea.*
REFERENCES: (**ds**) Barriga et al. 1993:84.

Page 75 ***aztecus*** Wood. Add:

DISTRIBUTION: NORTH AMERICA: Mexico (Oaxaca).

Page 76 ***botscharnikovi*** Stark. Add:

FIGURES: Aksent'yev 1992(1993):125 (larval characters).
REFERENCES: (**an**) Aksent'yev 1992(1993):124. (**ds**) Aksent'yev 1992(1993):124; Pfeffer 1994c:41. (**hb**) Aksent'yev 1992(1993):124. (**tx**) Pfeffer 1994c:41.

Page 76 ***californicus*** (Swaine). Add:

REFERENCES: (**bv**) Langor & Hergert 1993. (**cn**) Langor 1994. (**ec**) Hinds & Davidson 1975; Langor & Hergert 1993. (**hb**) Langor & Hergert 1993. (**ms**) Langor 1994; Skirkevicius 1993:60.

Page 76 ***caseariae*** Wood. Add:

REFERENCES: (**hb**) Noguera-Martinez & Atkinson 1990:462.

Page 76 ***cholodkovskyi*** Berger. Add:
FIGURES: Yin, Huang, & Li 1984:62 (adult, gallery).
REFERENCES: **(ds)** Yin, Huang, & Li 1984:61. **(tx)** Yin, Huang, & Li 1984:61.

Page 77 ***cingulatus*** Blandford. Add:
HOSTS: *Fraxinus sieboldiana*.

Page 77 ***crenatus*** (Fabricius). Add:
FIGURES: Lekander 1968:163 (larval characters); Pfeffer 1994c:263 (adult), 307 (adult).
DISTRIBUTION: ASIA: Turkey. EUROPE: Ireland.
HOSTS: *Acer* sp., *Fraxinus americana, F. angustifolia, F. excelsior, Juglans regia, Populus* sp., *Quercus pedunculata*.
REFERENCES: **(an)** Lekander 1968:54. **(ds)** Adam 1992:217; Bain 1977b:16; Balazuc 1984:308; Balazy & Michalski 1962a:200; Burakowski et al. 1992:33; Gogniat 1991:21; József 1992:221; Morris 1993:295; O'Conner, Winter, & Good 1991:403,405; Owen 1993:160; Titovsek 1983:397; Welch 1993:282. **(hb)** Balazy & Michalski 1962a:200; Koch 1992:155; Owen 1993:160. **(tx)** Burakowski et al. 1992:33; Lekander 1968.

Page 79 ***criddlei*** (Swaine). Add:
DISTRIBUTION: NORTH AMERICA: United States (Illinois).
REFERENCES: **(ds)** Laplante et al. 1991:115; Larochelle 1979:50; Weber & McPherson 1991:54.

Page 80 ***eos*** Spessivtsev. Add:
FIGURES: Yin, Huang, & Li 1984:63 (adult, gallery).
REFERENCES: **(en)** Wu 1990. **(ds)** Yin, Huang, & Li 1984:62. **(hb)** Wu 1990. **(tx)** Yin, Huang, & Li 1984:62.

Page 80 ***fasciatus*** LeConte. Add:
DISTRIBUTION: NORTH AMERICA: United States (Illinois).
REFERENCES: **(en)** Campbell, Sarazin, & Lyons 1989:368. **(ds)** Campbell, Sarazin, & Lyons 1989:368; Weber & McPherson 1991:54.

Page 80 ****hydropicus*** (Wickham). Add:
REFERENCES: **(ds)** Carpenter 1992:315.

Page 80 ***laticollis*** Blandford. Add:
FIGURES: Yin, Huang, & Li 1984:60 (adult, gallery).
REFERENCES: **(ds)** Yin, Huang, & Li 1984:59. **(tx)** Yin, Huang, & Li 1984:59.

Page 82 ***orni*** Fuchs. Add:
DISTRIBUTION: EUROPE: Netherlands, United Kingdom.
NOTES: Pfeffer 1994c:43 (recognizes two subspecies, *orni* and *wachtli*.)
REFERENCES: **(en)** Hyman 1992:400. **(ds)** Balazy & Michalski 1962a:200; Burakowski et al. 1992:34; Gogniat 1991:21; Hyman 1992:400; Pfeffer 1994c:43. **(ec)** Hyman 1992:400. **(hb)** Balazy & Michalski 1962a:200; Koch 1992:156. **(tx)** Burakowski et al. 1992:34; Pfeffer 1994a:159, 1994c:43.

Page 83 ***prutenskyi*** Sokanovskii. Add:
DISTRIBUTION: ASIA: Kyrgyzstan.
REFERENCES: **(ds)** Pfeffer 1994c:41. **(tx)** Pfeffer 1994c:41.

Page 83 ***toranio*** (Danthione). Add:
FIGURES: Lekander 1968:163 (larval characters); Pfeffer 1994c:263 (adult, as *oleiperda*), 307 (gallery).
DISTRIBUTION: ASIA: Lebanon. SOUTH AMERICA: Chile (introduced).
HOSTS: *Fagus sylvatica, Fraxinus angustifolia, F. excelsior, F. ornus, Juglans regia, Quercus* sp., *Robinia* sp., *Syringa vulgaris*.
REFERENCES: **(an)** Lekander 1968:55. **(ds)** Burakowski et al. 1992:35. **(tx)** Burakowski et al. 1992:35; Lekander 1968.

Page 83 *oleiperda* Fabricius (synonym of ***toranio*** (Danthione)). Add:
REFERENCES: **(ds)** Barriga et al. 1993:84; Gogniat 1991:21; Hansen et al. 1994:88; Owen 1993:160; Pfeffer 1994c:42; Schott 1986:57; Titovsek 1983:397. **(hb)** Del Guerico 1913; Koch 1992:156; Owen 1993:160. **(tx)** Pfeffer 1994c:42.

Page 85 ***tupolevi*** Stark. Add:
DISTRIBUTION: ASIA: Kyrgyzstan.
HOSTS: *Fraxinus raibocarpa*.
REFERENCES: **(ds)** Pfeffer 1994c:42. **(tx)** Pfeffer 1994c:42.

Page 85 ***varius*** (Fabricius). Add:
FIGURES: Joly 1977:9,10 (gallery); Lekander 1968:162 (larval characters); Lombardero 1994:146, Plate 2 (adult features, aedeagus, gallery); Pfeffer 1994c:264 (adult, as *fraxini*), 307 (gallery); Postner 1974:410 (adult); Xiao 1992:618 (adult, gallery).
DISTRIBUTION: ASIA: China, Iran. EUROPE: Ireland, Portugal.
HOSTS: *Acer campestre, A. platanoides, A. pseudaplatanus, Ailanthus* spp., *Carpinus betulus, Corylus avellana, Fagus sylvatica, Fraxinus americana, F. angustifolia, F. excelsior, F. ornus, F. oxyphylla, F. rotundifolia, Juglans nigra, J. regia, Olea europea, Pyrus malus, Quercus pedunculata, Q. robur, Robinia pseudoacacia, Syringa vulgaris*.
REFERENCES: **(bv)** Kohnle et al. 1992b; Lozano, Kidd, & Campos 1993; Lozano & Campos 1992. **(cn)** Arambourg 1975; Kohnle et al. 1992b; Lozano & Campos 1991a. **(ds)** Balazuc 1984:308; Balazy & Michalski 1962a:200; Burakowski et al. 1992:36; Gogniat 1991:21; Hansen et al. 1990:28, 1991a:20, 1992b, 1994:88; Lombardero 1994:145; Morris 1993:295; O'Conner, Winter, & Good 1991:403,405; Owen 1993:160; Schott 1986:57; Titovsek 1983:397. **(ec)** Campos & Lozano 1994; Grissell 1983; Lozano 1993; Lozano & Campos 1991a, 1991b; Lozano, Kidd, & Campos 1993; Lozano et al. 1994; Mills 1991. **(hb)** Balazy & Michalski 1962a:200; Koch 1992:156; Lozano 1993; Lozano & Campos 1991a, 1991b, 1993a, 1993b; Lozano, Kidd, & Campos 1993; Lozano et al. 1994; Owen 1993:160. **(tx)** Burakowski et al. 1992:36; Lombardero 1994:145.

Page 86 *fraxini* Panzer (synonym of ***varius*** (Fabricius)). Add:
REFERENCES: **(an)** Lekander 1968:53. **(ds)** Balazuc 1984:308; Balazy & Michalski 1962a:200; Michalski & Ratajczak 1994; Pfeffer 1994c:43; Xiao 1992:618. **(ec)** Lempériere & Malphettes 1983.

(**hb**) Balazy & Michalski 1962a:200; Lempériere & Malphettes 1983. (**tx**) Lekander 1968; Pfeffer 1994a:159, 1994c:43; Xiao 1992:618.

Page 89 ***wachtli*** Reitter. Add:
HOSTS: *Fraxinus excelsior, F. ornus.*
Notes: Pfeffer 1994c:44 (treated as subspecies of *orni*).
REFERENCES: (**ds**) Pfeffer 1989a:27, 1994a:159, 1994c:44.

Genus **Ficicis** Lea

Page 90 ***despectus*** (Walker). Add:
FIGURES: Zimmerman 1992:623 (adult).
DISTRIBUTION: ASIA: Thailand. OCEANIA: Admirality Islands, Bismarck Island, Caroline Island, Cook Islands (Niue Island), Guam, Mariana Islands, Marshall & Gilbert Islands, Society Island, Tahiti, Tonga (Hahake, Niuatoputapu), Truk.
HOSTS: *Ceiba pentandra, Citrus* sp., *Ficus* sp., *Ipomoea* sp. *Ochroma lagopus, Sloetia elongata.*
REFERENCES: (**ds**) Beaver & Maddison 1990:1371.

Page 90 *porcatus* Chapuis (synonym of ***despectus*** (Walker)). Add:
REFERENCES: (**ds**) Beaver 1987b:64; Beaver & Maddison 1990:1371.

Page 91 *insularum* Beeson (synonym of ***despectus*** (Walker)).
Replace "in press" with page 91.

Page 91 ***javanus*** (Eggers). Add:
DISTRIBUTION: ASIA: Thailand.
HOSTS: *Sterculia macrophylla.*

Page 92 ***wallacei*** (Blandford). Add:
DISTRIBUTION: OCEANIA: Fiji.

Genus **Hylesinopsis** Eggers

Page 93 ***baphiae*** (Schedl). Add:
DISTRIBUTION: AFRICA: Côte d'Ivoire, Tanzania, Zaire, Zimbabwe.
REFERENCES: (**ds**) Medler 1980:290.

Page 93 ***brincki*** (Schedl). Add:
DISTRIBUTION: AFRICA: Angola, Zambia.

Page 93 ***confusus*** (Eggers). Add:
DISTRIBUTION: AFRICA: Côte d'Ivoire, Rwanda, Senegal, Tanzania.
REFERENCES: (**ds**) Medler 1980:291.

Page 93 ***dubius*** Eggers. Add:
DISTRIBUTION: AFRICA: Nigeria, Sao Tomé.
REFERENCES: (**ds**) Medler 1980:290.

Page 94 ***fuscipennis*** (Chapuis). Add:
HOSTS: *Millettia grandis.*

Page 94 ***horridus*** (Eggers). Add:
REFERENCES: **(tx)** Schedl 1979c:119.

Page 94 ***joveri*** (Schedl). Add:
DISTRIBUTION: AFRICA: Cameroon, Fernando Poo.

Page 94 ***niger*** (Schedl). Add:
DISTRIBUTION: AFRICA: Zaire.
REFERENCES: **(ds)** Mayne & Donis 1962:306.

Page 95 ***secutus*** Wood. Add:
HOSTS: *Celtis zenkerii*.

Page 95 ***senegambiensis*** (Schedl). Add:
REFERENCES: **(tx)** Schedl 1979c:224.

Page 95 ***seriatus*** (Eggers). Add:
REFERENCES: **(ds)** Schedl 1961k:401–403. **(ec)** Schedl 1961k:401–403. **(hb)** Schedl 1961k:401–403. **(tx)** Schedl 1961k:401–403.

Page 95 ***striatus*** (Schedl). Add:
DISTRIBUTION: AFRICA: Kenya.
HOSTS: *Eucalyptus maculata*.

Page 95 ***sulcatus*** (Eggers). Add:
REFERENCES: **(hb)** Beaver & Löyttyniemi 1991.

Page 95 ***togonus*** (Eggers). Add:
DISTRIBUTION: AFRICA: Angola, Cameroon, Côte d'Ivoire, Gambia, Guinea, South Africa, Tanzania.

Genus **Rhopalopselion** Hagedorn

Page 96 ***bituberculatum*** Hagedorn. Add:
DISTRIBUTION: AFRICA: Dahomey.
REFERENCES: **(ds)** Medler 1980:291.

Page 96 ***conjungens*** Schedl. Add:
DISTRIBUTION: AFRICA: Uganda.

Page 97 ***pusillus*** (Gerstacker). Add:
DISTRIBUTION: AFRICA: Tanzania.

Page 97 ***thompsoni*** Schedl. Add:
HOSTS: *Bussea nitida, B. occidentalis, Celtis mildbraedii, Trichilia* sp.

Genus **Phloeoborus** Erichson

Page 97 **Phloeoborus** Erichson Add:
KEYS: Wood, Stevens, & Lezama 1991a:139 (to Costa Rican species).
REFERENCES: **(tx)** Wood, Stevens, & Lezama 1991a:139.

Page 98 ***asper*** Erichson. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Oaxaca).
Host: *Protium* sp. copal.

REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:139. (**tx**) Wood, Stevens, & Lezama 1991a:139.

Page 98 ***belti*** Blandford. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:139. (**tx**) Wood, Stevens, & Lezama 1991a:139.

Page 98 ***bodei*** Eggers. Add:
DISTRIBUTION: SOUTH AMERICA: Paraguay.

Page 98 ***cristatus*** Chapuis. Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.

Page 99 ***punctatorugosus*** Chapuis. Add:
DISTRIBUTION: SOUTH AMERICA: Bolivia.
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:139. (**tx**) Wood, Stevens, & Lezama 1991a:139.

Page 100 ***rudis*** Erichson. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Chiapas). SOUTH AMERICA: Bolivia, Paraguay.
HOSTS: *Ceiba petandra*.
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:139. (**tx**) Wood, Stevens, & Lezama 1991a:139.

Page 100 ***scaber*** Erichson. Add:
HOSTS: *Protium scaber*.
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:139. (**tx**) Wood, Stevens, & Lezama 1991a:139.

Genus **Dactylipalpus** Chapuis

Page 101 ***biseriatus*** Browne. Add:
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: (**ds**) Medler 1980:290

Page 101 ***camerunus*** Hagedorn. Add:
DISTRIBUTION: AFRICA: Equatorial Guinea, Nigeria, Rwanda.
HOSTS: *Celtis mildbraedii*, *Terminalia superba*.
REFERENCES: (**ds**) Medler 1980:290.

Page 101 ***cicatricosus*** (Blandford). Add:
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: (**ds**) Medler 1980:290.

Page 102 ***parricida*** Eggers. Add:
DISTRIBUTION: AFRICA: Ghana.

Page 102 ***transversus*** Chapuis. Add:
FIGURES: Zimmerman 1992:621 (adult).
DISTRIBUTION: OCEANIA: Buru Island, Gilolo Island, Goodenough Island, Rennell Island.
HOSTS: *Dyera costulata*, *Hevea brasiliensis*, *Pterocymbium* sp., *Tectona grandis*.
REFERENCES: (**cn**) Hong et al. 1982. (**ds**) Sukartana 1989b:38.

TRIBE TOMICINI

Page 103 **Tomicini.** Add:

KEYS: Lombardero 1994:150 (to genera in northwest Spain); Pfeffer 1994c:63 (to Palearctic genera).
REFERENCES: **(tx)** Lombardero 1994:150; Pfeffer 1994c:63.

Genus **Chaetoptelius** Fuchs

Page 103 **Chaetoptelius** Fuchs. Add:

REFERENCES: **(tx)** Pfeffer 1994c:45.

Page 103 ***bimaculatus*** (Schedl). Add:

FIGURES: Zimmerman 1992:627 (habitus).
NOTES: Zimmerman 1992:627 (treated in **Hylesinus**).

Page 103 ***impar*** (Schedl). Add:

REFERENCES: **(tx)** Schedl 1979c:122.

Page 103 ***mundulus*** (Broun). Add:

FIGURES: May 1993:202 (larval characters).
HOSTS: *Pittosporum crassifolium, P. eugenioides, P. tenuifolium.*
REFERENCES: **(ds)** Kuschel 1990:76; May 1993:93. **(hb)** May 1993:93; Miller 1971:80. **(tx)** May 1993:93.

Page 104 ***vestitus*** (Mulsant & Rey). Add:

DISTRIBUTION: ASIA: Israel. AFRICA: Mozambique.
HOSTS: *Pistacia mutica.*
REFERENCES: **(bv)** Abu Yaman 1969. **(cn)** Abu Yaman 1969; Hill 1983:629. **(ds)** Abu Yaman 1969; Adam 1992:217; Hill 1983:629; Kaddou 1967; Pfeffer 1994c:45. **(hb)** Abu Yaman 1969; Hill 1983:629. **(tx)** Pfeffer 1994c:45.

Page 104 *indigenus* Wollaston (synonym of ***vestitus*** (Mulsant & Rey)). Add:

REFERENCES: **(ds)** Adam 1992:217.

Genus **Xylechinosomus** Schedl

Page 105 ***contractus*** (Chapuis). Add:

REFERENCES: **(ds)** Schedl 1966f:82, 1967d:2, 1973d:153, 1976a:51; Schönherr & Pedrosa-Macedo 1981:50. **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Page 105 ***hirsutus*** Schedl. Add:

HOSTS: *Araucaria angustifolia.*
REFERENCES: **(ds)** Schönherr & Pedrosa-Macedo 1981:51. **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Page 105 ***humilis*** (Blanchard). Add:

HOSTS: *Araucaria araucana.*
NOTES: Location of type(s) — MNHN.
REFERENCES: **(ds)** Barriga et al. 1993:84; Elgueta & Jackson 1987:77. **(tx)** Bright 1969:35.

Page 105 ***minimus*** Schedl. Add:

REFERENCES: **(ds)** Schedl 1966f:82, 1967d:2, 1976a:51; Schönherr & Pedrosa-Macedo 1981:51.

Page 105 ***valdivianus*** (Eggers). Add:
HOSTS: *Araucaria araucana.*
REFERENCES: **(ds)** Barriga et al. 1993:84; Schedl 1973d:161, 1975d:2. **(ec)** Hirschmann 1972b, 1972c, 1972d; Ruhm 1969.

Add species: ***paranaensis*** (Schönherr) 1994:63 (**Pteleobius**). **NEW COMBINATION.** Holotype (sex ?); Telemaco-Borba, PR, Brazil; DZUFP, Curitiba.
FIGURES: Schönherr 1994:64 (habitus, adult).
DISTRIBUTION: SOUTH AMERICA: Brazil.
HOSTS: *Araucaria angustifolia.*
REFERENCES: **(hb)** Schönherr 1994:63. **(tx)** Schönherr 1994:63.

Genus **Sinophloeus** Brethes

Page 105 ***porteri*** Brethes. Add:
HOSTS: *Araucaria araucaria.*
DISTRIBUTION: SOUTH AMERICA: Argentina.
REFERENCES: **(ds)** Barriga et al. 1993:84.

Page 105 *destructor* Eggers (synonym of ***porteri*** Brethes). Add:
REFERENCES: **(ds)** Barriga et al. 1993:73.

Genus **Dendrotrupes** Broun

Page 106 ***costiceps*** Broun. Add:
Lectotype ♀ (BMNH), designated by Kuschel 1990:79.
FIGURES: May 1993:202 (larval features).
HOSTS: *Pseudopanax arboreus, P. crassifolius, P. lessonii, P. simplex.*
REFERENCES: **(ds)** Kuschel 1990:76; May 1993:93. **(hb)** May 1993:93. **(tx)** Kuschel 1990:79; May 1993:93.

Page 106 ***vestitus*** Broun. Add:
Lectotype ♀ (BMNH), designated by Kuschel 1990:80.
HOSTS: *Pseudopanax arboreus, P. lessonii.*
NOTES: Kuschel 1990:80 (reinstated from synonymy).
REFERENCES: **(ds)** Kuschel 1990:80. **(tx)** Kuschel 1990:76.

Genus **Hylurgopinus** Swaine

Page 106 ***rufipes*** (Eichhoff). Add:
FIGURES: Baker 1972:251; Davidson et al. 1964:4; Dillon & Dillon 1961:801; Finnegan & Sippel 1964:4; Hart & Kennedy 1981:3; Johnson & Lyons 1976:219; Martineau 1984:205; McGauley & Kirby 1991:13 (adult); Papp 1984:290 (gallery); Rose & Lindquist 1982a, 1982b:187; Stein & Kennedy 1972:120: Strong, Janes, & Morofsky 1955:5; Whitten 1960:6.
REFERENCES: **(cn)** Campbell, Sarazin, & Lyons 1989:368; Magasi et al. 1993; O'Keefe 1968; Westwood 1991. **(ds)** Campbell, Sarazin, & Lyons 1989:368; Dearborn & Donahue 1993:79; Laplante et al. 1991:115; Larochelle 1979:50; Papp 1984:289. **(ec)** Adrien 1952; Kondo 1971; Stickleu et al. 1991. **(hb)** Adrien 1952; Campbell, Sarazin, & Lyons 1989:368; Mason & Holliday 1993; Papp 1984:289; Weber & McPherson 1991. **(ms)** Magasi et al. 1993.

Genus **Pseudohylesinus** Swaine

Page 110 ***granulatus*** (LeConte). Add:

REFERENCES: (**ds**) Parsons et al. 1991:59. (**ec**) Bickel 1985; Livingston & Davidson 1987.

Page 110 ***nebulosus*** (LeConte). Add:

REFERENCES: (**ds**) Parsons et al. 1991:59. (**ec**) Bickel 1985; Grissell 1983. (**ms**) Skirkevicius 1993:61.

Page 112 ***sericeus*** (Mannerheim). Add:

REFERENCES: (**cn**) Gara, Oliver, & Kenady 1982. (**ds**) Gara, Oliver, & Kenady 1982; Parsons et al. 1991:59. (**ec**) Bickel 1985.

Page 112 *grandis* Swaine (synonym of ***sericeus*** (Mannerheim)). Add:

REFERENCES: (**ec**) Bickel 1985.

Page 113 ***tsugae*** Swaine. Add:

REFERENCES: (**ds**) Winter 1991a. (**ec**) Triplehorn 1990:302.

Genus **Xylechinus** Chapuis

Page 114 **Xylechinus** Chapuis. Add:

KEYS: Wood, Stevens, & Lezama 1991a:139 (to Costa Rican species).

REFERENCES: (**tx**) Pfeffer 1994c:64; Wood, Stevens, & Lezama 1991a:139.

Page 115 ***americanus*** Blackman. Add:

REFERENCES: (**cn**) Robertson 1990. (**ds**) Laplante et al. 1991:115. (**hb**) Robertson 1990.

Page 115 ***avarus*** Wood. Add:

REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:139. (**tx**) Wood, Stevens, & Lezama 1991a:139.

Page 116 ***marmoratus*** Blandford. Add:

REFERENCES: (**hb**) Noguera-Martinez & Atkinson 1990:462.

Page 117 ***pilosus*** (Ratzeburg). Add:

FIGURES: Lekander 1968:162 (larval characters); Pfeffer 1994c:303 (gallery).

HOSTS: *Abies pectinata, A. sibirica, Larix decidua, L. europaea, Picea abies, P. excelsa, P. jezoensis, P. obovata, Pinus cembra, P. pumila.*

REFERENCES: (**an**) Lekander 1968:50. (**bv**) Rauhut, Schmidt, & Schmidt 1993. (**ds**) Balazy & Michalski 1962a:200; Burakowski et al. 1992:38; Gogniat 1991:23; Hansen et al. 1994:88; Michalski & Ratajczak 1994; Pfeffer 1994c:64; Schott 1986:57. (**ec**) Heliövaara & Väisänen 1991. (**hb**) Balazy & Michalski 1962a:200; Heliövaara & Väisänen 1991; Koch 1992:157; Lindeman 1994. (**tx**) Burakowski et al. 1992:38; Lekander 1968; Pfeffer 1994c:64.

Genus **Hylurgus** Latreille

Page 119 **Hylurgus** Latreille. Add:
KEYS: Pfeffer 1994c:65 (to Palearctic species).
REFERENCES: (**tx**) Lombardero 1994:151; Pfeffer 1994c:65.

Page 119 ***ligniperda*** (Fabricius). Add:
FIGURES: Caver, Passoa, & Kucera 1994:3,5 (habitus); Kuschel 1990:100 (adult); Lombardero 1994:155, Plate 2 (adult features, aedeagus, gallery); Mulligan 1978:fig. 3; Nakane et al. 1963:382, pl. 191; Nobuchi 1966d:pl. 1; Pfeffer 1994c:281 (habitus); Stanek 1969:256; Swan 1943:89; Zimmerman 1992:625 (adult).
DISTRIBUTION: AFRICA: Algeria. ASIA: Cyprus. EUROPE: Corsica. NORTH AMERICA: United States (New York?).
HOSTS: *Pinus halepensis, P. halepensis brutia, P. nigra, P. nigra austriaca, P. nigra nigra, P. nigra pallasiana, P. pinaster, P. pinea, P. radiata, P. strobus, P. sylvestris.*
NOTES: One specimen detected in a trap near Rochester, New York (Haack 1995). Establishment not confirmed.
REFERENCES: (**bv**) Dominik & Litwiniak 1983; Rauhut, Schmidt, & Schmidt 1993; Tribe 1992. (**ds**) Balazuc 1984:309; Balazy & Michalski 1962a:199; Barriga et al. 1993:84; Borges 1990:116; Burakowski et al. 1992:39; Chakali 1992:508; Ciesla 1993:7; Fernandez Fernandez 1992:526; Gillerfors 1988:43; Haack 1995; Hansen et al. 1993:111; Kuschel 1990:76; Lombardero 1994:151; Michalski & Ratajczak 1994; Nilssen 1993; Pfeffer 1994c:65; Schott 1986:57. (**ec**) Dajoz 1990; Michalski & Ratajczak 1994; Trojan et al. 1994:91. (**hb**) Balazy & Michalski 1962a:199; Iglesias, Notario, & Baragaño 1989; Koch 1992:154; Tribe 1991a, 1991b. (**ms**) Hansen et al. 1993:111. (**tx**) Burakowski et al. 1992:39; Cavey, Passoa, & Kucera 1994:2; Lombardero 1994:151; Naumann 1993:160; Pfeffer 1994c:65.

Page 122 ***micklitzi*** Wachtl. Add:
HOSTS: *Pinus pinaster, P. pinea, P. nigra balcanica.*
REFERENCES: (**ds**) Pfeffer 1994c:66. (**tx**) Pfeffer 1994c:66.

Genus **Tomicus** Latreille

Page 122 **Tomicus** Latreille. Add:
KEYS: Lekander 1968:45 (to larvae of Scandinavian species); Lombardero 1994:158 (to species in northwest Spain); Pfeffer 1994c:66 (to Palearctic species); Yin, Huang, & Li 1984:53 (to Chinese species).
REFERENCES: (**tx**) Lekander 1968:45; Lombardero 1994:158; Pfeffer 1994c:66; Yin, Huang, & Li 1984:53.

Page 122 *Blastophagus* Eichhoff (synonym of ***Tomicus*** Latreille). Add:
REFERENCES: (**an**) Lekander 1968:44. (**tx**) Lekander 1968:44.

Page 123 ***brevipilosus*** (Eggers). Add:
HOSTS: *Pinus khasya.*

Page 123 ***destruens*** (Wollaston). Add:
HOSTS: *Pinus brutia brutia, P. canariensis, P. halepensis, P. pinaster.*

REFERENCES: **(ds)** Pfeffer 1994c:67. **(ec)** Mendel, Podoler, & Linne 1990. **(tx)** Pfeffer 1994c:67.

Page 123 ***minor*** (Hartig). Add:

FIGURES: Joly 1976b:fig. 136,247, 1977:9 (gallery); Lekander 1968:159 (larval characters); Lhoste & Roche 1960:fig. 3; Li, Dang, & Shi 1977:188 (adult, gallery); Lombardero 1994:160, Plate 2 (adult features, aedeagus, gallery); Louzil 1961:105; Nakane et al. 1963:382, pl. 191; Novak, V. et al. 1976:56; Pesson & Chararas 1969:687; Pfeffer 1989a:pl. 2 (adult, elytral declivity), 1994c:281 (elytral declivity), 303 (gallery); Xiao 1992:636 (adult, gallery); Yin, Huang, & Li 1984:55 (adult, gallery).

HOSTS: *Picea excelsa, Pinus brutia, P. cembra, P. densiflora, P. halepensis, P. koraiensis, P. montana, P. mugo, P. nigra, P. nigra austriaca, P. nigra balcanica, P. nigra cevennensis, P. nigra laricio, P. nigra nigra, P. nigra pallasiana, P. radiata, P. rotundata, P. strobus, P. sylvestris, P. thunbergii.*

DISTRIBUTION: EUROPE: Portugal, United Kingdom.

REFERENCES: **(an)** Lekander 1968:46. **(bv)** Långström & Hellqvist 1990, 1993a; Schlyter 1992. **(cn)** Byers 1992b; Eidmann, Lindelow, & Solbreck 1992; Hyman 1992:403; Kaitera & Jalkanen 1994; Karadzic, Knezevic, & Mihajlovic 1990:198; Kolk 1992; Långström & Hellqvist 1990, 1991; Saarenmaa 1990; Trofimov & Lipatkin 1989; Winter 1991b. **(ds)** Balazuc 1984:309; Balazy & Michalski 1962a:199; Burakowski et al. 1992:40; Fernandez Fernandez 1992:526; Gogniat 1991:23; Hyman 1992:403; Karadzic, Knezevic, & Mihajlovic 1990:198; Koponen & Nuorteva 1973:26; Lee et al. 1990:17; Li, Dang, & Shi 1977:69; Lombardero 1994:159; Michalski & Ratajczak 1994; Nilssen 1993; Pfeffer 1994c:67; Schott 1986:57; Siitonen 1990; Titovsek 1983:395; Xiao 1992:636; Yin, Huang, & Shi 1977:69. **(ec)** Grissell 1983; Gurando 1990; Hyman 1992:403; Kaitera & Jalkanen 1994; Löyttyniemi & Vusvaara 1977; Markalas 1991:74; Michalski & Ratajczak 1994; Michalski, Kaczmarek, & Ratajczak 1992b:145; Trojan et al. 1994:91. **(hb)** Balazy & Michalski 1962a:199; Koch 1992:154; Långström & Hellqvist 1993a; Li, Dang, & Shi 1977:69; Schlyter 1992; Winter 1991b. **(tx)** Burakowski et al. 1992:40; Lekander 1968; Lombardero 1994:159; Pfeffer 1994c:67; Xiao 1992:636; Yin, Huang, & Li 1984:54.

Page 128 ***pilifer*** (Spessivtsev). Add:

FIGURES: Xiao 1992:636 (adult, gallery).

DISTRIBUTION: ASIA: China.

REFERENCES: **(ds)** Xiao 1992:636. **(tx)** Xiao 1992:636.

Page 128 ***piniperda*** (Linnaeus). Add:

FIGURES: Aslam 1961:441,442; Burton et al. 1968:191; Duffy 1953:11; Haack & Kucera 1993; Joly 1976b:243, 1977:9 (gallery); Kucera 1992 (habitus, damage); Lekander 1968:159 (larval characters); Lévieux & Cassier 1994:28,29 (mycangia); Li, Dang, & Shi 1977:87 (adult, gallery); Lieutier et al. 1984:33; Lombardero 1994:164, Plate 2 (adult features, aedeagus, gallery); Louzil 1961:105; Nakane et al. 1963:pl.191; Novak, Hrozinka, & Stary 1976:57; Pfeffer 1989a:pl. 1,2 (adult), 1994c:263 (adult), 281 (elytral declivity), 303 (gallery); Questienne 1979:114; Sandhall

1975:85; Speight 1980:158; Thomas & Dixon 1992 (adult); Wilson & Becker 1960:86; Xiao 1992:638 (adult, damage); Yin, Dang, & Shi 1977:187 (adult, gallery); Yin, Huang, & Li 1984:54 (adult, gallery); Zivojinovic 1963:448.

DISTRIBUTION: AFRICA: Tunisia. ASIA: Cyprus, Vietnam. EUROPE: Ireland, Portugal. NORTH AMERICA: Canada (Ontario), United States (Illinois, Indiana, Michigan, New York, Ohio, Pennsylvania).

HOSTS: *Larix decidua, Pinus brutia, P. cembra, P. densiflora, P. halepensis, P. koraiensis, P. leucodermis, P. montana, P. mugo, P. nigra, P. nigra austriaca, P. nigra cevennensis, P. nigra nigra, P. nigra pallasiana, P. pentaphylla, P. peuce, P. pinaster, P. pinea, P. radiata, P. strobus, P. sylvestris, P. thunbergii.*

REFERENCES: **(an)** Lekander 1968:46; Lévieux & Cassier 1994. **(bv)** Baader & Vite 1990; Bouhot et al. 1992; Byers 1991, 1992a, 1992c; Delorme & Lieutier 1990; Fairhurst & Harding 1992; Fernandez Fernandez 1992:526; Långström & Hellqvist 1990, 1993b; Lekander 1984; Lindelow, Risberg, & Sjodin 1992; Schroeder 1990a, 1990b, 1991, 1992; Schroeder & Weslien 1994a, 1994b; Schlyter 1992; Schlyter & Lofqvist 1990; Tunset, Nilssen, & Anderson 1993; Vité, Volz, & Paiva 1986; Zumr 1992a. **(cn)** Annila & Heikkila 1991; Anonymous 1993b; Apel 1976; Baader & Vité 1990; Capretti, Pancones, & Parrini 1987; Chai et al. 1992; Chlodny 1982; Cobos-Suarez & Ruiz-Urrestarazu 1990; Delorme & Lieutier 1990; Dominik & Kinelski 1979; Eidmann, Lindelow, & Solbreck 1992; Glowacka, Lech, & Wilczynski 1991; Glowacka, Wajland, & Milczynski 1988; Gohda et al. 1964; Goix 1977; Haack & Kucera 1993; Holder 1992a, 1992b; Kaitera & Jalkabeb 1994; Karadzic, Knezevic, & Mihajlovic 1990:198; Kohnle et al. 1992a; Kolk 1992; Korczynski 1984; Kucera 1992; Långström et al. 1990, 1992; Långström & Hellqvist 1990, 1991, 1992, 1993b; Lieutier 1990a, 1992; Lieutier et al. 1991b; Lofting 1952; Luitjes 1977; Lutyk & Swiezynska 1984; Mihkelson 1986; Moraal 1992; Niu & Lu 1992; Piou 1994; Podlaski & Borkowski 1993; Prele 1993; Regnander 1976; Saarenmaa 1990; Schroeder 1990; Szmidt 1980; Taber 1993a, 1993b; Troeng & Långström 1991; Trofimov & Lipatkin 1989; Vitola & Ozols 1989; Wajland & Karaszewska 1977; Winter 1991b; Winter & Evans 1990; Ye Hui 1986; Zadig 1993. **(ds)** Bain 1977b:16; Balazy & Michalski 1962a:199; Burakowski et al. 1992:41; Ciesla 1993:8; Dajoz 1990; Gillerfors 1988:43; Gogniat 1991:23; Hoebeke 1994; Karadzic, Knezevic, & Mihajlovic 1990:198; Koponen & Nuorteva 1973:26; Kucera 1992; Lee et al. 1990:17; Li, Dang, & Shi 1977:68; Lombardero 1994:163; Michalski & Ratajczak 1994; Morris 1993:295; Nilssen 1993; O'Conner, Winter, & Good 1991:403,407; Pfeffer 1994c:66; Schott 1986:57; Siitonen 1990; Thomas & Dixon 1992; Titovsek 1983:395; Xiao 1992:637; Yin, Huang, & Li 1984:53. **(ec)** Champion 1917; Cheniclet 1987; Croisé & Lieutier 1993; Dajoz 1990; Delorme & Lieutier 1990; Duda 1981; Gibbs & Inman 1991; Grissell 1983; Kaitera & Jalkanen 1994; Långström et al. 1993; Lévieux & Cassier 1994; Lieutier, Cheniclet, & Garcia 1989; Lieutier et al. 1990, 1991b; Löyttyniemi & Vusvaara 1977; Markalas 1991:74; Mazur 1975; Mazur & Perlinski 1992; Michalski & Ratajczak 1994; Michalski, Kaczmarek, & Ratajczak 1992b:145; Nilssen

1993; Sauvard 1993; Schlyter & Lofqvist 1990; Schroeder & Weslin 1994a, 1994b; Solheim & Långström 1991; Solheim, Långström, & Hellqvist 1993; Tinelli & Catena 1992; Trojan et al. 1994:91; Tunset, Nilssen, & Anderson 1993; Urano & Hijii 1991; Wingfield & Gibbs 1991; Ye Hui 1991, 1992a, 1992b, 1994; Yoshikawa & Kasahara 1991. (**hb**) Annila & Heikkila 1991; Balazy & Michalski 1962a:199; Bouhot et al. 1992; Byers 1992c; Chai et al. 1992; Chakali 1992:507; Goix 1977; Haack & Kucera 1993; Heliövaara & Väisänen 1991; Iglesias, Notario, & Baragaño 1989; Koch 1992:154; Långström & Hellqvist 1993a; Li, Dang, & Shi 1977:68; Löyttyniemi & Vusvaara 1977; Nishiguchi 19960a; Niu & Lu 1992; Sauvard 1993; Schroeder 1990a; Schroeder & Weslin 1994a, 1994b; Schlyter 1992; Schlyter & Lofqvist 1990; Taber, Hudler, & Hoebeke 1993; Thomas & Dixon 1992; Winter 1991b; Ye & Li 1994; Ye Hui 1991, 1992a, 1992b; Ye Hui & Li 1994. (**ms**) Anonymous 1993b; Haack, Lawrence, & Heaton 1993:1–2; Holder 1992a,1992b; Taber 1993a, 1993b; Zadig 1993. (**tx**) Burakowski et al. 1992:41; Lekander 1968; Lombardero 1994:163; Pfeffer 1994c:66; Skirkevicius 1993:58; Taber, Hudler, & Hoebeke 1993; Xiao 1992:637; Yin, Huang, & Li 1984:53.

Genus **Dendroctonus** Erichson

Page 136 **Dendroctonus** Erichson. Add:

KEYS: Yin, Huang, & Li 1984:56 (to Chinese species).

REFERENCES: (**cn**) Carmona-Valdovinos 1978; Hope & Stow 1993. (**ec**) Hope & Stow 1993; Perry 1991. (**tx**) Pfeffer 1994c:64; Yin, Huang, & Li 1984:56.

Page 137 ***adjunctus*** Blandford. Add:

REFERENCES: (**an**) Salinas, Xuniga, & Cisneros 1994; Zuniga et al. 1994. (**cn**) Islas Salas 1980; Maes 1992:13; Wilson 1993. (**ec**) Perusquiam 1982b. (**hb**) Islas Salas 1980. (**ms**) Skirkevicius 1993:58; Strunz et al. 1990.

Page 138 ***armandi*** Tsai & Li. Add:

FIGURES: Xiao 1992:616 (adult, gallery).

REFERENCES: (**an**) Tang & Sun 1990. (**ds**) Li, Dang, & Shi 1977:67; Xiao 1992:616. (**hb**) Li, Dang, & Shi 1977:67. (**tx**) Xiao 1992:616.

Page 138 ***brevicomis*** LeConte. Add:

DISTRIBUTION: EUROPE: Ireland (introduced).

REFERENCES: (**an**) Page et al. 1990a. (**bv**) Bertram & Paine 1994a, 1994b; Byers 1992c; Dahlsten 1992:30; Hayes & Strom 1994; Hinz & Pitman 1983; Lowell, Willits, & Krahmer 1992; Miller 1984; Paine & Hanlon 1991. (**cn**) Cochran et al. 1994; Goheen & Hansen 1993; Hessburg, Mitchell, & Filip 1994:18,25,32,35; Smith 1990; Williams, Azuma, & Ferrell 1992. (**ds**) Morris 1993:295; O'Conner, Winter, & Good 1991:403,404; Papp 1984:292; Winter 1991a. (**ec**) Bickel 1985; Christiansen 1989; Dajoz 1993; Dahlsten 1992:30; Dahlsten et al. 1990; Goheen & Hansen 1993; Grissell 1983; Hobson, Parmeter, & Wood 1992:156, 1994. (**hb**) Byers 1992c; Papp 1984:292. (**ms**) Ballini 1991; Schultz et al. 1990; Skirkevicius

1993:58; Strunz et al. 1990; Vanderwel & Oehlschlager 1992. (**tx**) Page et al. 1990a.

Page 143 ***frontalis*** Zimmermann. Add:

REFERENCES: (**an**) Coppedge, Stephen, & Felton 1994; Coppedge et al. 1994; Kinn et al. 1994; Page et al. 1990a; Salinas, Zúñiga, & Cisneros 1994; Thoeny, Tiarks, & Elliott-Smith 1994. (**bv**) Berisford, Payne, & Berisford 1990; Billings 1985b; Dickens, Billings, & Payne 1992; Flamm, Pulley, & Coulson 1993; Fredericksen, Hedden, & Williams 1993; Hayes et al. 1994a; Payne et al. 1991; Salom et al. 1992a, 1992b; Schowalter & Turchin 1993; Smith, Payne, & Birch 1990; Smith, Salom, & Payne 1993. (**cn**) Anonymous 1987p, 1988f, 1994b:23; Arnold & Jiracek 1982; Belanger 1992:106; Belanger, Hedden, & Lorio 1993; Berisford et al. 1991; Bigler 1992: 110; Billings 1983a, 1984d, 1985a, 1986a, 1986c, 1987, 1988d, 1992:171; Billings & Upton 1993; Billings & Varner 1986; Billings & Ward 1984; Billings et al. 1985; Billings, Bryant, & Wilson 1985; Blanche et al. 1992; Bryant, Pace, & Billings 1982; Burkhart et al. 1991; Carter, O'Laughlin, & McKinney 1991; Cook & Hain 1992b; Coulson 1992a:122, 1992b:139; Dale et al. 1990; Dalusky, Berisford, & Bush 1990; Doggett & Tweed 1994; Dull 1981; Dunn & Lorio 1992a, 1992b, 1993; Fitzgerald et al. 1994; Fredericksen, Hedden, & Williams 1993; Holmes 1991, 1992:55, 1993; Honnold & Wood 1990; Islas Salas 1980; Johnson, Massey, & Popp 1992:162; Kard 1991; Kight 1990; Kulhavy, Costa, & Conner et al 1992; Lorio 1994b; Lorio, Ayers, & Dunn 1993; Lorio et al. 1990; Maes 1992: 13; Miles 1987; Miller & Parresol 1992; Mitchell et al. 1991; Nebeker et al. 1992; Nettleton 1992:122; Nord, Hastings, & Jones 1990; Payne et al. 1992; Powers et al. 1992a, 1992b; Pye 1993a, 1993b; Redmond & Nettleton 1990; Reeve & Turchin 1993; Ross, Kulhavy, & Conner 1993; Saunders et al. 1985; Schowalter & Turchin 1993; Scrivani 1983; Smith & Boring 1991; Spears & Nettleton 1993; Spears et al. 1992:165; Stephen 1992:31; Stephen & Lih 1992: 140; Stephen, Lih, & Wallis 1989; Thoeny, Tiarks, & Elliott-Smith 1994; Tisdale & Nebeker 1992; Turchin 1992; Turchin & Thoeny 1993; Turchin et al. 1991; Walters & Weldon 1982c; White 1987; Zhong, Hastings, & Hain 1994; Zhong et al. 1994. (**ec**) Alexander, Skelly, & Webb 1980; Bickel 1985; Birgersson et al. 1992:30,31; Clark & Richmond 1977; Cook, Hain, & Nappen 1990; Dunn 1992:75; Dunn & Lorio 1992a:165; Flamm, Pulley, & Coulson 1993; Goheen & Hansen 1993; Goldhammer, Stephen, & Paine 1990; Grissell 1983; Grosman, Salom, & Payne 1992; Harrington & Zambino 1990; Huntington 1994; Jones & Stephen 1994; Kard 1991; Kinn & Linit 1992; Lovelady et al. 1991; Mitchell et al. 1991; Nebeker & Schmitz 1992:155; Paine, Stephen, & Cates 1993; Perusquia Ortiz 1982b; Ross, Fenn, & Stephen 1992a, 1992b; Salom 1992:30; Salom et al. 1991, 1992a; Smith & Boring 1990; Stephen 1992:31; Stephen, Lih, & Wallis 1989; Triplehorn 1990:296,300,305; Wilkinshaw, Hess, & Perry 1993. (**hb**) Arnold & Jiracek 1982; Cook & Hain 1992a, 1992b; Cook, Hain, & Nappen 1990; Fordyce 1984; Grosman, Salom, & Payne 1992; Islas Salas 1980; Pye 1993a, 1993b; Reeve & Turchin 1993; Reeve, Ayers, & Lorio, Jr. 1994; Stephen, Lih, & Wallis 1989; Thoeny et al. 1992; Turchin 1990a, 1990b, 1992; Turchin & Thoeny 1993. (**ms**) Broadway 1991; Eikenbary, Pinkston, & Arnold 1994; Honnold & Wood 1990; Kight 1990; McKinney 1992:56; Ohira et al. 1990; Saunders et al. 1985; Skirkevicius 1993:58; Strunz et al. 1990; Sugai, Kakeya, & Ohta 1990; Taylor et al. 1992; Thoeny et al. 1992. **(tx)** Arnold & Jiracek 1982; Page et al. 1990a.

Page 152 ***jeffreyi*** Hopkins. Add:

REFERENCES: **(an)** Page et al. 1990a; Paine & Hanlon 1994. **(ec)** Paine & Hanlon 1994; Scharpf 1992:168. **(ms)** Skirkevicius 1993:57. **(tx)** Page et al. 1990a.

Page 153 ***mexicanus*** Hopkins. Add:

REFERENCES: **(an)** Correa & Bermudez 1991; Salinas, Zúñiga, & Cisneros 1994. **(cn)** Islas Salas 1980; Maes 1992:13. **(ec)** Perusquia 1982b. **(hb)** Islas Salas 1980.

Page 154 ***micans*** (Kugelann). Add:

FIGURES: Acatay 1968:19; Joly 1976, 1977:9 (gallery); Lekander 1968:160 (larval characters); Lévieux & Cassier 1994:29 (mycangia); Louzil 1961:105; Novak, Hrozinka, & Stary 1976:3; Pfeffer 1994c:263 (adult); Rudnev 1966:123; Schwerdtfeger 1981:190 (adult).

DISTRIBUTION: EUROPE: Estonia.

HOSTS: *Abies pectinata, Larix decidua, L. europaea, Picea abies, P. asperata, P. breweriana, P. engelmanni, P. excelsa, P. glauca, P. korsiensis, P. macrosperma, P. obovata, P. omorika, P. orientalis, P. sitchensis, Pinus cembra, P. mugo, P. pungens, P. sylvestris.*

REFERENCES: **(an)** Chkoidze & Zharkov 1989; Lekander 1968:47; Lévieux & Cassier 1994. **(bv)** Deneubourg, Grégoire, & LeFort 1990; Grégoire et al. 1991; Kelly & Barghian 1990; Schwerdtfeger 1981:190. **(cn)** Anonymous 1990a; Bevan 1984a; Couillien & Gregoire 1994; Dolmans & Grégoire 1992; Evans & Fielding 1994; Evans & King 1988; Fielding et al. 1991; Gnat 1991; Grégoire et al. 1992; King & Fielding 1989; Kipiani & Tsintsadze 1984; Legrand 1993; Lieutier 1992; Lieutier et al. 1992; Lofting 1952; Roigas 1975; Saarenmaa 1990; Simionescu 1975; Targamadze et al. 1975; Wainhouse, Cross, & Howell 1990. **(ds)** Balazuc 1984:309; Balazy & Michalski 1962a:199; Burakowski et al. 1992:43; Ciesla 1993:7; Evans & King 1988; Fielding et al. 1991; Lempériere 1994; O'Conner, Winter, & Good 1991:408; Pfeffer 1994c:64; Schott 1986:57; Schwerdtfeger 1981:190; Titovsek 1983:396; Winter 1991a; Yin, Huang, & Li 1984:56. **(ec)** Fielding 1992; Fielding, O'Keefe, & King 1991; Grégoire et al. 1991; King, Fielding, & O'Keefe 1991; Simionescu 1975; Wainhouse et al. 1991, 1992; Wyatt, Phillips, & Grégoire 1993. **(hb)** Balazy & Michalski 1969a:199; Chkoidze & Zharkov 1989; Evans & King 1988; King & Fielding 1989; Koch 1992:154; Kolomiets 1990; Lempériere 1994; Lindeman 1994; Luik & Voolma 1990; Schwerdtfeger 1981:190; Simionescu 1975; Vouland & Schvester 1994; Wainhouse & Beech-Garwood 1994; Wainhouse, Cross, & Howell 1990. **(tx)** Burakowski et al. 1992:43; Lekander 1968; Pfeffer 1994c:64; Yin, Huang, & Li 1984:56.

Page 157 ***murrayanae*** Hopkins. Add:

REFERENCES: **(ec)** Grissell 1983.

Page 158 ***parallelocollis*** Chapuis. Add:
REFERENCES: **(cn)** Maes 1992:13.

Page 159 ***ponderosae*** Hopkins. Add:
FIGURES: Anonymous 1963b:37; Beatty 1983; Doidge 1975, 1976, 1977; Gregson 1978:5; Ives & Wong 1988:74; Johnson & Creasap 1978; Kusch 1967:10; Lotan & Perry 1983; Safranyik, Shrimpton, & Whitney 1974:7.
REFERENCES: **(an)** Alosi & Robertson 1992:4; Greene 1992:3; Langor & Spence 1991; Page et al. 1990a; Paine & Hanlon 1994. **(bv)** Amman & Ryan 1991, 1994; Bergvinson & Borden 1991; Borden 1993; Borden, Chong, & Lindgren 1990; Borden, Devlin, & Miller 1992; Burke 1992; Eckberg et al. 1994; Gibson et al. 1991; Gries 1992; Gries et al. 1990b, 1992b; Hayes & Strom 1994; Hunt & Borden 1990; Kostyk, Borden, & Gries 1993; Lindgren & Borden 1993; Miller & Lafontaine 1991; Moeck & Simmons 1991; Preisler & Mitchell 1993; Safranyik et al. 1992a, 1992b; Schmid & Mata 1992; Schmid, Mata, & Allen 1992; Schmitz & McGregor 1990; Shore, Safranyik, & Lindgren 1992; Vanderwel 1994; Vanderwel et al. 1992. **(cn)** Aldrich 1976; Amman 1994; Amman & Ryan 1994; Amman et al. 1991; Bartos & Downing 1990, 1992:169; Bartos & Gibson 1990:171; Bennett et al. 1980; Bentz 1992:169; Bentz, Amman, & Logan 1993; Bergvinson & Borden 1992a; Borden 1992a, 1992b; Borden et al. 1993; Brandt & Amirault 1994:12,20; Burke 1992; Cameron, Stage, & Crookston 1990; Cochran et al. 1994; Cole 1975; Eav, Dillman, & White 1984; Eckberg et al. 1994; Gibson 1988c; Gibson & Dewey 1992; Gibson et al. 1991; Gillespie 1990; Gimbarzevsky, Dawson, & Van Sickle 1992; Goheen & Hansen 1993; Hamilton & Wendt 1975; Heath & Alfaro 1990; Hessburg, Mitchell, & Filip 1994:6,9,11,18,25,35,46; Howard 1991; Hoy & Shea 1992; Keane et al. 1990; Kneppeck & Ahern 1989; Kostyk, Borden, & Gries 1993; Lemaster, Troxell, & Sampson 1983; Lindgren & Borden 1993; Lister et al. 1990; Lowell, Willits, & Krahmer 1992; Marsden 1983; Moody & Amirault 1992; Parker & Stipe 1993; Pasek & Schaupp 1992; Peterson & Hibbs 1989; Polymenopoulos & Long 1990; Price 1991; Safranyik & Linton 1993; Schmid & Amman 1992; Schmid & Mata 1992; Schmid, Mata, & Obedzinski 1994; Shea, McGregor, & Daterman 1992; Shore 1990; Shore & Safranyik 1992; Snellgrove & Ernst 1983; Stuart, Agee, & Gara 1989; Thomson 1991; Unger 1993; Walsh, Ward, & Olienyk 1989; Williams, Azuma, & Ferrell 1992; Willits, Woodfin, & Snellgrove 1990. **(ds)** Papp 1984:292. **(ec)** Armour 1984; Ayer & Nozawa 1990; Ayer, Craw, & Nozawa 1991; Bartos & Booth 1994; Bentz, Logan, & Amman 1991; Bergvinson & Borden 1991, 1992a, 1992b; Bickel 1985; Christiansen 1989; Dajoz 1993; Doidge & Muir 1991; Eckberg et al. 1994; Gara, Littke, & Rhoades 1993; Geiszler 1983; Goheen & Hansen 1993; Grissell 1983; Hunt & Borden 1990; Linhart, Snyder, & Gibson 1994; Lundquist 1991; Miller & Lafontaine 1991; Naumann, Rankin, & Isman 1994; Paine & Hanlon 1994; Rankin & Borden 1991; Safranyik & Linton 1991; Schmid et al. 1991a, 1991b, 1993; Schmid, Mata, & Schmidt 1991, 1992; Sigler, Yamoaka, & Hiratsuka 1990; Stone & Wolfe 1993; Triplehorn 1990:299,304; Tsuneda et al. 1993; Yamoaka, Swanson, & Hiratsuka 1990. **(hb)** Amman & Bartos 1991; Cameron, Stage, & Crookston

1990; Downing & Bartos 1991; Gibson 1990; Langor, Spence, & Pohl 1990; Mitchell & Preisler 1991; Papp 1984:292; Polymenopoulos & Long 1990; Safranyik & Linton 1993; Safranyik et al. 1992a, 1992b; Schaupp et al. 1993; Schmid, Mata, & Allen 1992; Unger 1993. **(ms)** Burke & Wickman 1990; Fitzgerald 1990; Skirkevicius 1993:59; Vanderwel et al. 1992; Wickman 1990. **(tx)** Page et al. 1990a.

Page 168 ***pseudotsugae*** Hopkins. Add:

FIGURES: Anonymous 1971f:8, 1971g:12; Doidge 1973b, 1975, 1976; Jantz & Johnsey 1964:1328; Kusch 1967:10; McMullen 1977:1; Morris, Cottrell, & Wood 1979:4; Skovsgaard 1968; Wright & Lauterback 1958:7.

DISTRIBUTION: ASIA: China (Anhui, introduced).

REFERENCES: **(an)** Lewinsohn et al. 1994. **(bv)** Amman & Ryan 1991; Dixon et al. 1992:171; Hessburg, Mitchell, & Filip 1994:11, 26,42; Lindgren 1992; Lindgren et al. 1992. **(cn)** Ciesla 1992; Gibson & Oakes 1991; Goheen & Hansen 1993; Hadley 1994; Lessard & Schmid 1990; Livingston & McGregor 1994; Lowell, Willits, & Krahmer 1992; Marsden, Eav, & Thompson 1994; Patterson 1992; Ross & Daterman 1994; Thier & Weatherby 1991. **(ds)** Ciesla 1992, 1993:7; Papp 1984:293; Parsons et al. 1991:58; Winter 1991a. **(ec)** Bickel 1985; Doidge & Muir 1991; Dubreuil, Tunnock, & Dooling 1982; Goheen & Hansen 1993; Hadley 1994; Hadley & Veblen 1993; Lessard & Schmid 1990; Lewinsohn et al. 1994; Lindgren 1992. **(hb)** Lessard & Schmid 1990; Papp 1984:293; Schaupp 1993. **(ms)** Skirkevicius 1993:59; Strunz et al. 1990.

Page 173 ***punctatus*** LeConte. Add:

REFERENCES **(ds)** Laplante et al. 1991:115; Larochelle 1979:50. **(hb)** Furniss 1995.

Page 173 ***rufipennis*** Kirby. Add:

DISTRIBUTION: EUROPE: Ireland (introduced).

REFERENCES: **(bv)** Amman & Ryan 1991; Dixon et al. 1992:171; Gries 1992; Gries et al. 1992a; Hard 1992; Hard & Holsten 1991; Lindgren 1992; Roovers & Rebertus 1993. **(cn)** Anonymous 1992a; Baker & Veblen 1990; Brandt & Amirault 1994:12,21; Fowler & O'Regan 1974; Gray, Holsten, & Pascuzzo 1990; Hard & Holsten 1991; Hessburg, Mitchell, & Filip 1994:6,9; Holsten 1990, 1994; Holsten & Werner 1990, 1993; Humphries & Safranyik 1993; Love 1953; Moody & Amirault 1992; Queitsch & Develice 1994; Reynolds & Hard 1991; Reynolds & Holstein 1994a, 1994b; Safranyik & Garbutt 1993; Safranyik, Barclay, & Simmons 1990; Shea, Holsten, & Hard 1991; Shore, Hall, & Maher 1990; Van Hees 1992; Van Hees & Holsten 1994; Van Hees & Larson 1991; Veblen et al. 1991a, 1991b, 1994; Werner 1994a, 1994b; Werner & Hilgert 1992; Werner & Holsten 1992; Werner & Illman 1994. **(ds)** Dearborn & Donahue 1993:79; Laplante et al. 1991:115; Larochelle 1979:50; Morris 1993:295; O'Conner, Winter, & Good 1991:403,404; Papp 1984:291; Winter 1991a. **(ec)** Bickel 1985; Dearborn & Donahue 1993:79; Develice, Queitsch, & Holsten 1994; Illman & Werner 1994; Lindgren 1992; Reynolds 1992; Roovers & Rebertus 1993; Veblen et al. 1994; Werner & Illman 1994. **(hb)** Hard 1992;

Humphries & Safranyik 1993; Papp 1984:291; Safranyik & Garbutt 1993; Safranyik, Barclay, & Simmons 1990; Van Hees & Holsten 1994. (**ms**) Skirkevicius 1993:59; Veblen et al. 1991a 1991b; Werner 1994b.

Page 180 ***simplex*** LeConte. Add:
REFERENCES: (**bv**) Dixon et al. 1992:171. (**ds**) Dearborn & Donahue 1993:79; Laplante et al. 1991:115; Larochelle 1979:50; Papp 1984:292; Schwert 1992:81,84. (**ec**) Dearborn & Donahue 1993:79; Langor 1991; Tomalak, Welch, & Galloway 1990. (**ms**) Skirkevicius 1993:59.

Page 181 ***terebrans*** (Olivier). Add:
REFERENCES: (**an**) Pajares & Lanier 1990. (**bv**) Delorme & Payne 1990; Flamm, Pulley, & Coulson 1993; Phillips et al. 1990; Smith, Payne, & Birch 1990; Smith, Salon, & Payne 1993. (**cn**) Anonymous 1994b:24; Arnold & Jiracek 1982; Clark & Hebb 1951; Nord, Hastings, & Jones 1990. (**ds**) Atkinson & Peck 1994:318; Papp 1984:293. (**ec**) Flamm, Pulley, & Coulson 1993. (**hb**) Arnold & Jiracek 1982; Atkinson & Peck 1994:318; Papp 1984:293. (**ms**) Eikenbary, Pinkston, & Arnold 1994. (**tx**) Arnold & Jiracek 1982; Pajares & Lanier 1990.

Page 183 ***valens*** LeConte. Add:
REFERENCES: (**an**) Paine & Hanlon 1994; Salinas, Zúñiga, & Cisneros 1994. (**bv**) Eckberg et al. 1994; Grégoire et al. 1991; Hobson & Wood 1993; Hobsen et al. 1993; White & Hobsen 1993. (**cn**) Dajoz 1993; Eckberg et al. 1994; Jastrzembski & Barrett 1990; Klepzig, Raffa, & Smalley 1992:161; Koehler 1990; Nowak & McBride 1992; Robertson 1990; Schmid & Mata 1991; Williams, Azuma, & Ferrell 1992. (**ds**) Dearborn & Donahue 1993:79; Laplante et al. 1991:115; Larochelle 1979:50; Papp 1984:293. (**ec**) Dajoz 1992; Eckberg et al. 1994; Grégoire et al. 1991; Klepzig, Raffa, & Smalley 1991, 1992:161; Paine & Hanlon 1994; Storer & Dallara 1992; Tomminen & Akar 1990; Wingfield 1983. (**hb**) Papp 1984:293; Robertson 1990.

Page 186 ***vitei*** Wood. Add:
REFERENCES: (**ms**) Skirkevicius 1993:59; Strunz et al. 1990.

Genus **Hylurdrectonus** Schedl

Page 186 ***piniarius*** Schedl. Add:
FIGURES: Zimmerman 1992:623 (adult).
REFERENCES: (**tx**) Naumann 1993:160.

Genus **Hylurgonotus** Schedl

Page 187 ***antipodus*** (Eggers). Add:
REFERENCES: (**ds**) Barriga 1993:84.

Page 187 ***armaticeps*** Schedl. Add:
HOSTS: *Araucaria araucaria.*
REFERENCES: (**ds**) Barriga et al. 1993:84.

Page 187 ***tuberculatus*** (Eggers). Add:
DISTRIBUTION: SOUTH AMERICA: Bolivia.
HOSTS: *Araucaria araucana.*

Page 187 *brunneus* Schedl (synonym of ***tuberculatus*** (Eggers)). Add:
REFERENCES: **(cn)** Giganti 1986. **(ds)** Barriga et al. 1993:73. **(hb)** Giganti & Dapoto 1990.

Genus **Pachycotes** Sharp

Page 187 **Pachycotes** Sharp. Add:
REFERENCES: **(tx)** May 1993:95.

Page 187 ***australis*** Schedl. Add:
FIGURES: Zimmerman 1992:629 (adult).
REFERENCES: **(tx)** Naumann 1993:160.

Page 187 ***clavatus*** Schedl. Add:
REFERENCES: **(tx)** Naumann 1993:160.

Page 187 ***peregrinus*** (Chapuis). Add:
FIGURES: May 1993:205 (larval characters).
HOSTS: *Dacrydium cupressinum.*
REFERENCES: **(an)** May 1993:95. **(hb)** May 1993:95.

Page 187 *ventralis* Sharp (synonym of ***peregrinus*** (Chapuis)). Add:
REFERENCES: **(hb)** Miller 1971:80.

TRIBE PHRIXOSOMINI

Genus **Phrixosoma** Blandford

Page 189 **Phrixosoma** Blandford. Add:
KEYS: Wood, Stevens & Lezama 1991a:138 (to Costa Rican species).
REFERENCES: **(tx)** Wood, Stevens & Lezama 1991a:138.

Page 189 ***brasiliensis*** Schedl. Add:
REFERENCES: **(tx)** Marinoni et al. 1992:125.

Page 189 ***minor*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Veracruz).
REFERENCES: **(tx)** Wood, Stevens & Lezama 1991a:139.

Page 190 ***obesa*** Blackman: Add:
REFERENCES: **(tx)** Wood, Stevens & Lezama 1991a:138.

Page 190 ***psaltes*** (Hagedorn). Add:
HOSTS: *Elaeis guineensis.*

Page 190 ***quadrioculata*** (Eggers). Add:
DISTRIBUTION: AFRICA: Cameroon, Equatorial Guinea.

Page 190 ***rude*** Blandford. Add:
REFERENCES: **(ds)** Wood, Stevens & Lezama 1991a:138. **(tx)** Wood, Stevens & Lezama 1991a:138.

TRIBE HYORRHYNCHINI

Genus **Sueus** Murayama

Page 191 ***niisimai*** (Eggers). Add:
DISTRIBUTION: ASIA: Malaysia (Sabah), Thailand.
HOSTS: *Carpinus carpinoides, Chamaecyparis obtusa, Coffea* sp., *Fissistigma elegans, Grewia paniculata, Lithocarpus edulis, Polyalthia jenkensii, Prunus donarium, Quercus glauca, Q. sieboldiana, Schoutenia accrescens, Styrax japonica, Swietenia macrophylla.*
REFERENCES: (**ds**) Beaver 1990:280; Bright 1994:272; Yin & Huang 1993. (**tx**) Yin & Huang 1993.

Add species: ***borneensis*** Bright 1994:271. Holotype (♀): Borneo, Sabah, Mount Kinabalu N. P., Poring Hot Spgs., 850 m: DEBC, Ottawa.
FIGURES: Bright 1994:273 (antenna).
DISTRIBUTION: ASIA: Malaysia (Sabah).
REFERENCES: (**tx**) Bright 1994:271.

Genus **Hyorrhynchus** Blandford

Page 191 ***blandfordi*** Sampson. Add:
DISTRIBUTION: ASIA: Tibet (in China).
HOSTS: *Acer* sp., *Prunus* sp.

Page 191 ***ebianensis*** Huang & Yin. Add:
HOSTS: *Schima superba.*
REFERENCES: (**tx**) Yang & Sun 1991:66.

Page 192 ***flavopannus*** Huang & Yin. Add:
HOSTS: *Rhododendron* sp.
REFERENCES: (**tx**) Yang & Sun 1991:66.

Page 192 ***tuberopectus*** Huang & Yin. Add:
REFERENCES: (**tx**) Yang & Sun 1991:66.

TRIBE DIAMERINI

Page 193 **Diamerini**. Correction:
REFERENCES: Wood, S.L. 1978a:11 should be Wood, S.L. 1978a: *116*, and 1986:44 should be 1986*a*:44.

Genus **Acacacis** Lea

Page 193 ***abundans*** Lea. Add:
FIGURES: Zimmerman 1992:617 (adult).

Page 193 ***granulicollis*** (Schedl). Add:
REFERENCES: (**tx**) Schedl 1979c:111.

Page 193 ***malayanus*** Browne. Add:
DISTRIBUTION: OCEANIA: Australia, New Zealand, Tasmania.

Page 194 ***trahax*** (Sampson). Add:
HOSTS: *Cinnamomum iners.*

Genus **Pseudodiamerus** Eggers

Page 194 *obscura* Schedl (synonym of ***obscurus*** Eggers). Add:

REFERENCES: (**tx**) Schedl 1979c:175.

Genus **Bothrosternoides** Schedl

Page 194 ***malayensis*** Schedl. Add:

HOSTS: *Canarium* sp., *Parishia* sp., *Terminalia* sp.

REFERENCES: (**ds**) Ohno 1990c:84.

Genus **Diamerus** Erichson

Page 195 ***curvifer*** (Walker). Add:

HOSTS: *Artocarpus anisophylla, A. rigida.*

REFERENCES: (**ds**) Ohno 1990c:83.

Page 195 ***fici*** Blandford. Add:

DISTRIBUTION: ASIA: Laos.

Page 196 ***hispidus*** (Klug). Add:

HOSTS: *Pachytrope dimepate, Persica vulgaris.*

Page 196 ***impar*** Chapuis. Add:

DISTRIBUTION: AFRICA: Equatorial Guinea, Fernando Poo, Gabon, Tanzania, Upper Volta.

HOSTS: *Bombax* sp., *Celtis soyauxii, Chlorophora excelsa, Dalhousiea africana, Ficus exasperata, F. thonningii, Garcinia polyantha, Guarea cedrata, G. laurentii, Nauclea diderrichii, Piptadenia* sp., *Staudtia stipitata.*

Page 196 ***imperfectus*** Eggers. Add:

DISTRIBUTION: AFRICA: Congo, Equatorial Guinea, South Africa.

HOSTS: *Acacia dudgeoni, Ficus vallischoudae.*

Page 196 ***interstitialis*** (Lea). Add:

FIGURES: Zimmerman 1992:623 (adult).

Page 196 ***luteus*** Hagedorn. Add:

HOSTS: *Artocarpus dadah, A. elastica, A. odoratissimus, A. scortechini.*

REFERENCES: (**ds**) Ohno 1990c:83.

Page 197 ***matangi*** Sampson. Add:

DISTRIBUTION: ASIA: Sulawesi.

Page 197 ***pimelioides*** (Schaufuss). Add:

DISTRIBUTION: AFRICA: Nigeria, Uganda.

HOSTS: *Morus lactea.*

REFERENCES: (**ds**) Medler 1980:290.

Page 197 ***pulverulentus*** Gerstaecker. Add:

DISTRIBUTION: AFRICA: Cape Verde Islands, Côte d'Ivorie, Equatorial Guinea, South Africa, Zambia.

HOSTS: *Ficus natalensis.*

Page 197 ***ritsemae*** (Eichhoff). Add:
DISTRIBUTION: ASIA: Malaysia.
HOSTS: *Castanopsis sumatrana, Pasania sundaica, Shorea leprosula.*

Genus **Sphaerotrypes** Blandford

Page 198 **Sphaerotrypes** Blandford. Add:
KEYS: Yin, Huang, & Li 1984:75 (to Chinese species).
REFERENCES: (**tx**) Yin, Huang, & Li 1984:75.

Page 198 ***brevisetosus*** Browne. Add:
HOSTS: *Hopea odorata.*

Page 198 ***brunneus*** Heymons. Add:
DISTRIBUTION: AFRICA: Namibia.

Page 198 ***bryanti*** Browne. Add:
HOSTS: *Cotylelobium flavum, Vatica* sp.
REFERENCES: (**ds**) Ohno 1990c:83.

Page 199 ***carinatus*** Eggers. Add:
DISTRIBUTION: ASIA: Burma, India, Malaysia, Philippine Islands.
HOSTS: *Hopea* sp., *Shorea leprosula.*
REFERENCES: (**ds**) Ohno 1990c:83.

Page 199 ***coimbatorensis*** Stebbing. Add:
FIGURES: Li, Dang, & Shi 1977:193 (all life stages); Li & Zhou 1980:193 (adult, gallery); Xiao 1992:635 (adult, immature stages).
HOSTS: *Juglans regia, Pterocarya stenoptera, Terminalia tomentosa.*
REFERENCES: (**ds**) Li, Dang, & Shi 1977:74; Li & Zhou 1980:74; Xiao 1992:635; Yin, Huang, & Li 1984:77. (**ec**) Li & Zhou 1980: 193. (**hb**) Li, Dang, & Shi 1977:74; Li & Zhou 1980:74. (**tx**) Xiao 1992:635.

Page 199 ***expressus*** Schedl. Add:
DISTRIBUTION: AFRICA: South Africa.

Page 199 ***globulus*** Blandford. Add:
DISTRIBUTION: ASIA: Thailand, Vietnam.
HOSTS: *Castanopsis acuminatissima.*

Page 199 ***grandis*** Schedl. Add:
DISTRIBUTION: AFRICA: Central African Republic.
HOSTS: *Carapa* sp., *Entandrophragma* sp., *Fagara* sp., *Pygeum* sp.

Page 199 ***hagedorni*** Eggers. Add:
HOSTS: *Anogeissus leiocarpus.*

Page 200 ***juglansi*** Tsai & Yin. Add:
REFERENCES: (**ds**) Yin, Huang, & Li 1984:81. (**tx**) Yin, Huang, & Li 1984:81.

Page 200 ***magnus*** Tsai & Yin. Add:
REFERENCES: (**ds**) Yin, Huang, & Li 1984:75. (**tx**) Yin, Huang, & Li 1984:75.

Page 200 ***minutus*** Browne. Add:
HOSTS: *Hopea* sp.

Page 200 ***moseri*** Eggers. Add:
HOSTS: *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990c:83.

Page 200 ***pila*** Blandford. Add:
DISTRIBUTION: ASIA: China.
HOSTS: *Camellia japonica, Carpinus laxiflora, Quercus stenophylla.*

Page 200 *imitans* Eggers (synonym of ***pila*** Blandford). Add:
REFERENCES: **(ds)** Yin, Huang, & Li 1984:79. **(tx)** Yin, Huang, & Li 1984:79.

Page 200 ***pygeumi*** Schedl. Add:
DISTRIBUTION: AFRICA: Uganda.

Page 200 ***pyri*** Tsai & Yin. Add:
REFERENCES: **(ds)** Yin, Huang, & Li 1984:80. **(tx)** Yin, Huang, & Li 1984:80.

Page 200 ***quadrituberculatus*** Sampson. Add:
DISTRIBUTION: ASIA: Burma, Thailand.

Page 201 ***siwalikensis*** Stebbing. Add:
DISTRIBUTION: ASIA: Malaysia (Sarawak), Pakistan, Thailand.
HOSTS: *Dipterocarpus obtusifolius, Lagerstroemia* sp., *Shorea floribunda, S. obtusa, S. siamensis.*

Page 201 *assamensis* Stebbing (synonym of ***siwalikensis*** Stebbing). Add:
REFERENCES: **(ds)** Hutacharern et al. 1988:33.

Page 201 ***subtectus*** Browne. Add:
REFERENCES: **(cn)** Mathur & Singh 1960b:58. **(ds)** Mathur & Singh 1960b:58.

Page 201 ***tsugae*** Tsai & Li. Add:
REFERENCES: **(ds)** Yin, Huang, & Li 1984:76. **(tx)** Yin, Huang, & Li 1984:76.

Page 202 ***ulmi*** Tsai & Yin. Add:
REFERENCES: **(ds)** Yin, Huang, & Li 1984:78. **(tx)** Yin, Huang, & Li 1984:78.

Page 202 ***variegatus*** Eggers. Add:
DISTRIBUTION: AFRICA: South Africa.
HOSTS: *Fagara capensis.*

Page 202 ***yunnanensis*** Tsai & Yin. Add:
REFERENCES: **(ds)** Yin, Huang, & Li 1984:80. **(tx)** Yin, Huang, & Li 1984:80.

Genus **Peronophorus** Strohmeyer

Page 202 ***abhorrens*** Eggers. Add:
DISTRIBUTION: AFRICA: South Africa, Zambia.
HOSTS: *Lonchocarpus capassa*.

Page 202 ***armatus*** Eggers. Add:
DISTRIBUTION: AFRICA: Angola, Malawi, South Africa.

Page 202 ***brevicollis*** (Strohmeyer). Add:
DISTRIBUTION: AFRICA: Zambia.

Genus **Strombophorus** Hagedorn

Page 203 ***crenatus*** Hagedorn. Add:
DISTRIBUTION: AFRICA: Equatorial Guinea, Nigeria.
REFERENCES: **(ds)** Medler 1980:291.

Page 203 ***dailiumi*** Schedl. Add:
DISTRIBUTION: AFRICA: Ghana.

Page 203 ***ericius*** (Schaufuss). Add:
DISTRIBUTION: AFRICA: Cameroon, Congo, Equatorial Guinea, Ghana, Nigeria, Tanzania, Zambia.
HOSTS: *Celtis mildbraedii, C. zenkerii, Ficus* nr. *capensis, Gossweilerodendron balsamiferum, Trichilia* sp.
REFERENCES: **(ds)** Medler 1980:291. **(tx)** Schedl 1979c:91.

Page 203 ***intermedius*** Eggers. Add:
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: **(ds)** Medler 1980:291.

Page 203 ***lukengeae*** Schedl. Add:
DISTRIBUTION: AFRICA: Nigeria.
HOSTS: *Dalium guianense*.
REFERECNES: **(ds)** Medler 1980:291.

Page 204 ***millettiae*** Schedl. Add:
HOSTS: *Gilbertiodendron dewevrei*.

Page 204 ***minutissimus*** Schedl. Add:
REFERENCES: **(tx)** Schedl 1979c:157.

Page 204 ***nigrescens*** Schedl. Add:
REFERENCES: **(tx)** Schedl 1979c:167.

Page 204 ***occidentalis*** Schedl. Add:
REFERENCES: **(tx)** Schedl 1979c:177.

Page 204 ***setulosus*** Schedl. Add:
REFERENCES: **(tx)** Schedl 1979c:226.

Page 204 ***spathulatus*** Schedl. Add:
REFERENCES: **(tx)** Schedl 1979c:233.

Page 204 ***vittatus*** Eggers. Add:
DISTRIBUTION: AFRICA: Equatorial Guinea, Ghana.
HOSTS: *Millettia duchesnei*.

TRIBE BOTHROSTERNINI

Genus **Cnesinus** LeConte

Page 205 **Cnesinus** LeConte. Add:
KEYS: Wood, Stevens, & Lezama 1991a:140 (to Costa Rican species).
REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994. **(tx)** Wood, Stevens, & Lezama 1991a:140.

Page 205 ***adusticus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:143. **(tx)** Wood, Stevens, & Lezama 1991a:143.

Page 205 ***adustus*** Schedl. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:143. **(tx)** Wood, Stevens, & Lezama 1991a:143.

Page 206 ***beaveri*** Wood. Add:
HOSTS: *Guatteria* sp., *Siparuna guianensis*.

Page 206 ***bicostatus*** Schedl. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:143. **(tx)** Wood, Stevens, & Lezama 1991a:140.

Page 206 ***blackmani*** Schedl. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:143. **(tx)** Wood, Stevens, & Lezama 1991a:140.

Page 207 ***costulatus*** Blandford. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:141. **(hb)** Noguera-Martinez & Atkinson 1990:462. **(tx)** Wood, Stevens, & Lezama 1991a:141.

Page 207 ***degener*** Wood. Add:
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:462.

Page 207 ***denotatus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:143. **(tx)** Wood, Stevens, & Lezama 1991a:143.

Page 207 *dryographus* Schedl (synonym of ***dividuus*** Schedl). Add:
REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994. **(tx)** Marinoni et al. 1992:123.

Page 207 *laevicollis* Schedl (synonym of ***dividuus*** Schedl). Add:
REFERENCES: **(tx)** Marinoni et al. 1992:123.

Page 207 ***electinus*** Wood. Add:
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:462.

Page 207 ***electus*** Wood. Add:
HOSTS: *Miconia* sp., ?*Serjania* sp.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:141. **(tx)** Wood, Stevens, & Lezama 1991a:141.

Page 207 ***elegans*** Blandford. Add:
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:462.

Page 208 ***equihuai*** Wood. Add:
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:462.

Page 208 ***foratus*** Wood. Add:
HOSTS: Coffee berries.

Page 208 ***frontalis*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:140. (**tx**) Wood, Stevens, & Lezama 1991a:140.

Page 208 ***garrulus*** Schedl. Add:
REFERENCES: (**tx**) Schedl 1979c:103.

Page 208 ***gibbosus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:140. (**tx**) Wood, Stevens, & Lezama 1991a:140.

Page 208 ***gibbulus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:140. (**tx**) Wood, Stevens, & Lezama 1991a:140.

Page 208 ***gracilis*** Blandford. Add:
DISTRIBUTION: NORTH AMERICA: Dominica. SOUTH AMERICA: Brazil.
HOSTS: *Guatteria* sp., *Hirtella* sp., *Protium* sp., *Pterodon pubescens*, *Struthanthus* sp.
REFERENCES: (**ds**) Noguera Martinez & Atkinson 1990:462; Wood, Stevens, & Lezama 1991a:140. (**tx**) Wood, Stevens, & Lezama 1991a:140.

Page 209 ***hispidus*** Eggers. Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.

Page 209 ***insularis*** Eggers. Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.

Page 209 ***intermedius*** Schedl. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:141. (**tx**) Wood, Stevens, & Lezama 1991a:141.

Page 209 ***lecontei*** Blandford. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:141. (**tx**) Wood, Stevens, & Lezama 1991a:141.

Page 209 ***minax*** Schedl. Add:
REFERENCES: (**tx**) Schedl 1979c:153.

Page 209 ***minitropis*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:141. (**tx**) Wood, Stevens, & Lezama 1991a:141.

Page 209 ***myelitis*** Wood. Add:
REFERENCES: (**ds**) Noguera Martinez & Atkinson 1990:462.

Page 210 ***niger*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:141. (**tx**) Wood, Stevens, & Lezama 1991a:141.

Page 210 ***nitidus*** Eggers. Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.

Page 210 ***noguerae*** Atkinson. Add:
FIGURES: Atkinson 1989a:61 (frons, habitus).
REFERENCES: (**ds**) Noguera Martinez & Atkinson 1990:462.

Page 210 ***novateutonicus*** Schedl. Add:
REFERENCES: (**tx**) Marinoni et al. 1992:123.

Page 210 ***paraguayensis*** Schedl. Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.

Page 210 ***perplexus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:142. (**tx**) Wood, Stevens, & Lezama 1991a:142.

Page 210 ***porcatus*** Blandford. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:142. (**tx**) Wood, Stevens, & Lezama 1991a:142.

Page 211 ***pullus*** Blandford. Add:
REFERENCES: (**ds**) Noguera Martinez & Atkinson 1990:462; Wood, Stevens, & Lezama 1991a:140. (**tx**) Wood, Stevens, & Lezama 1991a:140.

Page 211 ***punctatus*** Blandford. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Veracruz).
REFERENCES: (**ds**) Noguera Martinez & Atkinson 1990:462; Wood, Stevens, & Lezama 1991a:140. (**tx**) Wood, Stevens, & Lezama 1991a:140.

Page 211 ***retifer*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:140. (**tx**) Wood, Stevens, & Lezama 1991a:140.

Page 211 ***schoenherri*** Schedl. Add:
REFERENCES: (**tx**) Marinoni et al. 1992:123.

Page 211 ***setulosus*** Blandford. Add:
DISTRIBUTION: NORTH AMERICA: Costa Rica.
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:143. (**tx**) Wood, Stevens, & Lezama 1991a:143.

Page 212 ***squamosus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:140. (**tx**) Wood, Stevens, & Lezama 1991a:140.

Page 212 ***strigicollis*** LeConte. Add:
HOSTS: *Gleditschia triacanthos*.
REFERENCES: (**ds**) Atkinson & Peck 1994:318. (**hb**) Atkinson & Peck 1994:318; Weber & McPherson 1991.

Genus **Pagiocerus** Eichhoff

Page 213 ***frontalis*** (Fabricius). Add:
DISTRIBUTION: NORTH AMERICA: Jamaica, Mexico (**Chiapas, Nuevo León, Oaxaca**). SOUTH AMERICA: Equador (Santa Cruz in Galapagos Islands), Trinidad.
HOSTS: Caesalpinaceae "cativo".
REFERENCFS: (**ds**) Atkinson & Peck 1994:318; Barriga et al. 1993:84; Peck & Kukulová-Peck 1990:1637. (**hb**) Atkinson & Peck 1994:318. (**tx**) Wood, Stevens, & Lezama 1991a:130.

Page 214 *chiriquensis* Eggers (synonym of ***frontalis*** (Fabricius)). Add:
REFERENCES: (**tx**) Schedl 1979c:57.

Page 214 *caraibicus* Eggers (synonym of ***frontalis*** (Fabricius)). Add:
REFERENCES: (**tx**) Schedl 1979c:53.

Page 214 ***punctatus*** Eggers. Add:
HOSTS: *Luchea divaricata, Ocotea porosa, O. puberula.*
REFERENCES: (**ec**) Carrano-Moreira & Pedrosa-Macedo 1994. (**tx**) Schedl 1979c:204.

Genus **Eupagiocerus** Blandford

Page 214 **Eupagiocerus** Blandford. Add:
KEYS: Wood, Stevens, & Lezama 1991a:143 (to Costa Rican species).
REFERENCES: (**tx**) Wood, Stevens, & Lezama 1991a:143.

Page 214 ***ater*** Eggers. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:143. (**tx**) Wood, Stevens, & Lezama 1991a:143.

Page 214 *nevermanni* Schedl (synonym of ***ater*** Eggers). Add:
REFERENCES: (**tx**) Schedl 1979c:165.

Page 214 ***dentipes*** Blandford. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:143. (**tx**) Wood, Stevens, & Lezama 1991a:143.

Page 214 ***vastus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:143. (**tx**) Wood, Stevens, & Lezama 1991a:143.

Genus **Bothrosternus** Eichhoff

Page 215 **Bothrosternus** Eichhoff. Add:
KEYS: Wood, Stevens, & Lezama 1991a:144 (to Costa Rican species).
REFERENCES: (**tx**) Wood, Stevens, & Lezama 1991a:144.

Page 215 ***artestrigosus*** Schedl. Add:
DISTRIBUTION: SOUTH AMERICA: Bolivia.

Page 215 ***brevis*** Eggers. Add:
DISTRIBUTION: NORTH AMERICA: Dominica. SOUTH AMERICA: Bolivia, Venezuela.

Page 215 ***definitus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:144. **(tx)**Wood, Stevens, & Lezama 1991a:144.

Page 215 ***foveatus*** (Blackman). Add:
REFERENCES: **(ds)** Noguera Martinez & Atkinson 1990:462; Wood, Stevens, & Lezama 1991a:144. **(tx)** Wood, Stevens, & Lezama 1991a:144.

Page 215 ***isolatus*** Bright. Add:
DISTRIBUTION: NORTH AMERICA: **Dominica**, **Guadeloupe**.

Page 215 ***lucidus*** Wood. Add:
HOSTS: *Hirtella* sp., *Protium* sp.

Page 215 ***suturalis*** Eggers. Add:
REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Genus **Sternobothrus** Eggers

Page 216 ***bicaudatus*** (Blandford). Add:
HOSTS: *Guatteria* sp., *Hirtella* sp., *Ocotea guianensis*, *Protium* sp., *Siparuna guianensis*.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:144. **(tx)** Wood, Stevens, & Lezama 1991a:144.

Page 216 ***carinatus*** Eggers. Add:
REFERENCES: **(tx)** Schedl 1979c:53.

Page 216 ***lobatus*** Eggers. Add:
REFERENCES: **(tx)** Schedl 1979c:140.

Page 216 ***opaculus*** Schedl. Add:
REFERENCES: **(tx)** Schedl 1979c:179.

Page 216 ***rufonitidus*** Schedl. Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.
REFERENCES: **(tx)** Schedl 1979c:214.

Page 216 ***sculpturatus*** (Blandford). Add:
HOSTS: *Ocotea guianensis*.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:144. **(tx)** Wood, Stevens, & Lezama 1991a:144.

Page 216 ***tuberculatus*** Eggers. Add:
REFERENCES: **(tx)** Schedl 1979c:258.

TRIBE PHLOEOTRIBINI

Page 217 **Phloeotribini.** Add:
KEYS: Pfeffer 1994c:49 (to Palearctic genera).
REFERENCES: **(tx)** Lombardero 1994:170; Pfeffer 1994c:49.

Genus **Aricerus** Blandford

Page 217 ***eichhoffi*** Blandford. Add:
HOSTS: *Canarium australasicum*.

Genus **Phloeotribus** Latreille

Page 217 **Phloeotribus** Latreille. Add:
KEYS: Lombardero 1994:170 (to species in northwest Spain); Pfeffer 1994a:155 (to Central European species), 1994c:49 (to Palearctic species); Wood, Stevens, & Lezama 1991a:144 (to Costa Rican species).
REFERENCES: (**tx**) Lombardero 1994:170; Pfeffer 1994a:155, 1994c:49; Wood, Stevens, & Lezama 1991a:144.

Page 217 *Phloeophthorus* Wollaston (synonym of **Phloeotribus** Latreille). Add:
KEYS: Pfeffer 1994c:51 (to Palearctic species).

Page 217 *Phthorophloeus* Rey (synonym of **Phloeotribus** Latreille). Add:
KEYS: Pfeffer 1994c:51 (to Palearctic species).

Page 218 ***acaciae*** (Lea). Add:
FIGURES: Zimmerman 1992:639 (habitus).
NOTES: Zimmerman 1992:639 (treated in **Xylechinus**).

Page 218 ***argentinensis*** (Schedl). Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.

Page 218 ***armatus*** Blandford. Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:146. (**tx**) Wood, Stevens, & Lezama 1991a:146.

Page 219 ***atavus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:145. (**tx**) Wood, Stevens, & Lezama 1991a:145.

Page 219 ***biguttatus*** Blandford. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:146. (**tx**) Wood, Stevens, & Lezama 1991a:146.

Page 219 ***brasiliensis*** (Schedl). Add:
REFERENCES: (**tx**) Schedl 1979c:45.

Page 219 ***brevicollis*** (Kolenati). Add:
HOSTS: *Fraxinus* spp.
DISTRIBUTION: AFRICA: Morocco. EUROPE: Corsica.
REFERENCES: (**ds**) Pfeffer 1994c:55. (**tx**) Pfeffer 1994c:54.

Page 219 ***caucasicus*** Reitter. Add:
FIGURES: Pfeffer 1994c:268 (antenna).
DISTRIBUTION: ASIA: Cyprus. EUROPE: Austria, Czechoslovakia, France.
HOSTS: *Cypressus* sp., *Fraxinus raibocarpa*, *F. syriaca*.
REFERENCES: (**ds**) Pfeffer 1994c:50; Schott & Callot 1994:69. (**hb**) Koch 1992:152; Schott & Callot 1994:69. (**tx**) Pfeffer 1994a:156, 1994c:50.

Page 219 ***championi*** (Blandford). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:145. (**tx**) Wood, Stevens, & Lezama 1991a:145.

Page 220 ***cristatus*** (Fauvel). Add:
FIGURES: Pfeffer 1994c:267 (antenna, elytral outline).
DISTRIBUTION: EUROPE: Sardinia.
HOSTS: *Calycotome spinosa, C. villosa, Lygos* spp., *Sarothamnus scoparius*.
NOTES: Pfeffer 1994c:56 (recognizes two subspecies, *cristatus* and *latus*).
REFERENCES: (**ds**) Pfeffer 1994c:56. (**tx**) Pfeffer 1994c:56.

Page 220 *geschwindi* Seitner (synonym of ***cristatus*** (Fauvel)). Add:
REFERENCES: (**ds**) Titovsek 1983:392.

Page 220 *latus* Wichmann (synonym of ***cristatus*** (Fauvel)). Add:
DISTRIBUTION: EUROPE: Yugoslavia.
HOSTS: *Petteria ramentacea, Spartium junceum*.
NOTES: Pfeffer 1994c:56 (treats this taxon as a subspecies of *cristatus*).
REFERENCES: (**ds**) Pfeffer 1994c:56; Titovsek 1983:392. (**tx**) Pfeffer 1994c:56.

Page 220 ***cylindricus*** Schedl. Add:
REFERENCES: (**tx**) Marinoni et al. 1992:124.

Page 220 ***demessus*** Blandford. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Tamaulipas).
HOSTS: *Ficus radulina*.
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:462; Wood, Stevens, & Lezama 1991a:146. (**hb**) Noguera-Martinez & Atkinson 1990:462. (**tx**) Wood, Stevens, & Lezama 1991a:146.

Page 221 ***dentifrons*** (Blackman). For type localities read — "A. & M. College (Starkville), Mississippi and *campus*, University of Kansas, Lawrence, Kansas [USA]". Add:
FIGURES: Blackman 1921:11 (adult).
DISTRIBUTION: NORTH AMERICA: United States (Mississippi, **Ohio**), Canada (Ontario).
HOSTS: *Celtis mississippiensis, C. tenuifolia*.
REFERENCES: (**ds**) Bright, Skidmore, & Dunster 1994. (**hb**) Weber & McPherson 1991.

Page 221 ***despectus*** Schedl. Add:
REFERENCES: (**tx**) Schedl 1979c:79.

Page 221 ***discrepans*** Blandford. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:144. (**tx**) Wood, Stevens, & Lezama 1991a:144.

Page 221 ***erosus*** Schedl. Add:
REFERENCES: (**tx**) Marinoni et al. 1992:125.

Page 221 ***fraxini*** (Eggers). Add:
HOSTS: *Fraxinus angustifolia*.
REFERENCES: (**ds**) Pfeffer 1994c:55. (**tx**) Pfeffer 1994c:54.

Page 221 ***frontalis*** (Olivier). Add:
DISTRIBUTION: NORTH AMERICA: United States (Florida, Oklahoma).

REFERENCES: (**hb**) Weber & McPherson 1991.

Page 222 ***furvus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:146. (**tx**) Wood, Stevens, & Lezama 1991a:146.

Page 222 ***hercegovinensis*** (Seitner). Add:
FIGURES: Pfeffer 1994c:280 (adult outline).
HOSTS: *Laburnum* spp., *Spartium junceum*.
REFERENCES: (**ds**) Pfeffer 1994c:54. (**tx**) Pfeffer 1994c:54.

Page 222 ***hirtellus*** Schedl. Add:
REFERENCES: (**tx**) Schedl 1979c:118.

Page 222 ***hystrix*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:144. (**tx**) Wood, Stevens, & Lezama 1991a:144.

Page 223 ***insularis*** Eggers. Add:
DISTRIBUTION: NORTH AMERICA: **Dominica**.

Page 223 ***lecontei*** Schedl. Add:
REFERENCES: (**ds**) Elias 1992a, 1992b, 1994:190, 230.

Page 223 ***liminaris*** (Harris). Add:
REFERENCES: (**cn**) Campbell, Sarazin, & Lyons 1989:370; Rexrode & Smith 1990. (**ds**) Campbell, Sarazin, & Lyons 1989:370; Laplante et al. 1991:115; Papp 1984:290. (**hb**) Campbell, Sarazin, & Lyons 1989:370; Papp 1984:290; Weber & McPherson 1991.

Page 224 *mississippiensis* Blackman (synonym of ***liminaris*** (Harris)). Add: Type repository "USNM, Washington".

Page 224 ***marginatus*** Eggers. Add:
DISTRIBUTION: SOUTH AMERICA: Colombia.

Page 224 ***maroccanus*** (Guillebeau). Add:
DISTRIBUTION: EUROPE: France.
HOSTS: *Calycotome spinoisa, Lagos boveyi*.
REFERENCES: (**ds**) Pfeffer 1994c:57. (**tx**) Pfeffer 1994c:57.

Page 224 ***maurus*** Wood. Add:
HOSTS: *Pseudoolmedia spuria*.
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:146. (**tx**) Wood, Stevens, & Lezama 1991a:146.

Page 224 ***mayeti*** (Guillebeau). Add:
DISTRIBUTION: ASIA: Turkey.
HOSTS: *Calycotome villosa, Spartium junceum*.
REFERENCES: (**ds**) Schedl 1961b:186.

Page 225 ***muricatus*** (Eggers). Add:
FIGURES: Pfeffer 1994c:310 (gallery).
REFERENCES: (**ds**) Pfeffer 1994c:55. (**tx**) Pfeffer 1994c:55; Schedl 1979c:161.

Page 225 ***nanus*** Wood. Add:
HOSTS: *Guatteria* spp., *Pseudoolmedia laevigata*.

Page 225 ***novateutonicus*** (Schedl). Add:
REFERENCES: **(tx)** Marinoni et al. 1992:125.

Page 225 ***nubilus*** Blandford. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:145. **(tx)** Wood, Stevens, & Lezama 1991a:145.

Page 225 ***opimus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Costa Rica.
HOSTS: *Ficus glabrata.*
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:145. **(tx)** Wood, Stevens, & Lezama 1991a:145.

Page 225 ***perfoliatus*** (Wollaston). Add:
FIGURES: Pfeffer 1994c:267 (elytral outline).
HOSTS: *Coronilla emeroides, Laburnum* spp.
REFERENCES: **(ds)** Pfeffer 1994c:54. **(tx)** Pfeffer 1994c:54.

Page 226 ***peyerimhoffi*** (Eggers). Add:
FIGURES: Pfeffer 1994c:267 (antenna, elytral outline).
DISTRIBUTION: EUROPE: Greece (Peloponnes).
HOSTS: *Genista numidica, Laburnum* sp., *Lygos boveyi, Spartium junceum.*
REFERENCES: **(ds)** Pfeffer 1994c:54. **(tx)** Pfeffer 1994c:54.

Page 226 ***piceae*** Swaine. Add:
REFERENCES: **(cn)** Robertson 1990. **(ds)** Garry et al. 1990b; Laplante et al. 1991:115; Schwert 1992:81,84. **(hb)** Robertson 1990.

Page 226 ***picipennis*** Eggers. Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.

Page 226 ***pilula*** (Erichson). Add:
DISTRIBUTION: SOUTH AMERICA: Bolivia.
HOSTS: *Pseudoolmedia laevigata.*
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:146. **(tx)** Wood, Stevens, & Lezama 1991a:146.

Page 227 *australis* Schedl (synonym of ***pilula*** (Erichson)). Add:
REFERENCES: **(tx)** Schedl 1979c:32.

Page 227 ***profanus*** Schedl. Add:
REFERENCES: **(tx)** Schedl 1979c:199.

Page 227 ***pruni*** Wood. Add:
HOSTS: *Prunus serotina capuli.*
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:463. **(hb)** Noguera-Martinez & Atkinson 1990:463.

Page 227 ***pseudocristatus*** (Pfeffer). Add:
FIGURES: Pfeffer 1994c:267 (antenna, elytral outline).
REFERENCES: **(ds)** Pfeffer 1994c:57. **(tx)** Pfeffer 1994c:57.

Page 227 ***pseudoscabricollis*** Atkinson. Add:
FIGURES: Atkinson 1989b:330 (habitus, frons, elytral declivity).

Page 227 ***puberulus*** (Chapuis). Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.

Page 227 ***pubifrons*** (Guillebeau). Add:

FIGURES: Pfeffer 1994c:267 (antenna), 310 (gallery).
HOSTS: *Olea europaea.*
NOTES: Pfeffer 1994c:55 (recognizes two subspecies, *pubifrons* and *guillebeaui*).
REFERENCES: **(ds)** Pfeffer 1994c:55. **(tx)** Pfeffer 1994c:55.

Page 228 *guillebeaui* Reitter (synonym of ***pubifrons*** (Guillebeau)). Add:

HOSTS: *Olea europaea.*
NOTES: Pfeffer 1994c:55 (treats this taxon as a subspecies of *pubifrons*).
REFERENCES: **(ds)** Pfeffer 1994c:55. **(tx)** Pfeffer 1994c:55.

Page 228 ***rhododactylus*** (Marsham). Add:

FIGURES: Lekander 1968:165 (larval characters); Lombardero 1994:176, Plate 3 (adult features, aedeagus, gallery); Pfeffer 1994c: 267 (frons, elytral outline), 280 (adult outline).
DISTRIBUTION: ATLANTIC ISLANDS: Madeira Islands. EUROPE: Ireland, Portugal.
HOSTS: *Adenocarpus complicatus, Calycotome villosa, Coronilla emerus, Crataegus monogyna, Cytisus laburnum, C. nigricans, C. scoparius, Ficus carica, Fraxinus excelsior, Genista florida, Laburnim* spp., *Sarothamnus vulgaris.*
NOTES: Pfeffer 1994c:52 (recognizes two subspecies, *rhododactylus* and *austriacus*. See p. 230 in 1992 catalog for explanation).
REFERENCES: **(an)** Lekander 1968:57. **(ds)** Balazuc 1984:308; Burakowski et al. 1992:44; Lombardero 1994:171; Morris 1993:295; O'Conner, Winter, & Good 1991:403,406; Owen 1993:160; Schott 1986:56; Simandl & Zletecka 1987:323; Whitehead 1992a:50. **(hb)** Koch 1992:152; Owen 1993; Simandl & Zletecka 1987:323. **(tx)** Burakowski et al. 1992:44; Lekander 1968; Lombardero 1994: 171.

Page 230 ***vinogradovi*** Semenov. Add:

HOSTS: *Genista* spp., *Laburnum* sp.
NOTES: Pfeffer 1994c:53 (treats this taxon as a valid species).
REFERENCES: **(ds)** Pfeffer 1994c:53. **(tx)** Pfeffer 1994c:53.

Page 230 ***rugulosus*** Eggers. Add:

DISTRIBUTION: SOUTH AMERICA: Paraguay.

Page 230 ***scabratus*** Blandford. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:145. **(tx)** Wood, Stevens, & Lezama 1991a:145.

Page 230 ***scarabaeoides*** (Bernard). Add:

FIGURES: Lombardero 1994:181, Plate 3 (adult features, aedeagus, gallery); Pfeffer 1994a:155 (antenna); 1994c:268 (antenna).
DISTRIBUTION: AFRICA: Libya. ASIA: Egypt, Jordan, Lebanon. ATLANTIC ISLANDS: Canary Islands. EUROPE: Portugal. NORTH AMERICA: Greenland.
HOSTS: *Fraxinus angustifolia, F. excelsior, F. syriaca, Phyllyrea angustifolia, P. latifolia, P. media, Rhamnus alaternus, Syringa vulgaris.*

NOTES: Pfeffer 1994a:156 and 1994c:50 (recognizes two subspecies, *scarabaeoides* and *occidentalis*. See p. 230 in 1992 catalog for explanation).
REFERENCES: (**an**) González, Alvarez, & Campos 1994. (**bv**) Benazoun 1992; Campos, Pena, & Sanchez Raya 1994; González, Alvarez, & Campos 1994; Ismail, Abu-Zeid, & Abdallah 1988; Pena et al. 1992. (**cn**) Arambourg 1975; Benazoun 1992; González & Campos 1994. (**ds**) Balazuc 1984:308; Benazoun 1992; Fernandez Fernandez 1992:525; Lombardero 1994:179; Pfeffer 1994c:50; Titovsek 1983:392. (**ec**) Azoun 1990; Benazoun 1992; Campos & Lozano 1994; González & Campos 1990a, 1990b, 1991a, 1991b, 1993; Ismail, Abu-Zeid, & Abdallah 1988. (**hb**) Azoun 1990; Benazoun 1992; González & Campos 1990c, 1993; Koch 1992:152. (**tx**) Lombardero 1994:179; Pfeffer 1994a:156, 1994c:50.

Page 232 ***setulosus*** Eichhoff. Add:
DISTRIBUTION: NORTH AMERICA: **Jamaica**, Mexico (Oaxaca). SOUTH AMERICA: French Guiana.
HOSTS: *Guatteria* sp., *Pseudoolmedia laevigata, P. spuria, Sorocea illicifolia.*
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:146. (**tx**) Wood, Stevens, & Lezama 1991a:146.

Page 232 *spinipennis* Eggers (synonym of ***setulosus*** Eichhoff). Add:
REFERENCES: (**ds**) Hoganson & Ashworth 1992:108.

Page 233 ***simplex*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:145. (**tx**) Wood, Stevens, & Lezama 1991a:145.

Page 233 ***spinulosus*** (Rey). Add:
FIGURES: Lekander 1968:164 (larval characters); Pfeffer 1994c: 301 (gallery).
HOSTS: *Cedrus brevifolia, Picea abies, P. P. jezoensis, P. obovata.*
REFERENCES: (**an**) Lekander 1968:56. (**ds**) Balazy & Michalski 1962a:199; Burakowski et al. 1992:45; Gogniat 1991:23; Pfeffer 1994c:51; Titovsek 1983:392. (**hb**) Balazy & Michalski 1962a:199; Koch 1992:152. (**tx**) Burakowski et al. 1992:45; Lekander 1968; Pfeffer 1994c:51.

Page 234 ***squamatus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:145. (**tx**) Wood, Stevens, & Lezama 1991a:145.

Page 234 ***striatus*** (Eggers). Add:
REFERENCES: (**tx**) Schedl 1979c:238.

Page 234 ***subcostatus*** Eggers. Add:
REFERENCES: (**tx**) Schedl 1979c:240.

Page 234 ***subovatus*** Blandford. Add:
REFERENCES: (**tx**) Wood, Stevens, & Lezama 1991a:145.

Page 235 ***texanus*** Schaeffer. Add:
REFERENCES: (**ds**) Atkinson & Peck 1994:319. (**hb**) Atkinson & Peck 1994:319.

Page 235 ***venezuelensis*** (Schedl). Add:
REFERENCES: **(tx)** Schedl 1979c:265.

Page 235 ***willei*** Schedl. Add:
HOSTS: *Ficus carica.*
REFERENCES: **(ds)** Barriga et al. 1993:84.

Add species: ****antiguus*** Bright & Poinar 1994:176. Holotype (sex?); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:177.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: **(tx)** Bright & Poinar 1994.

TRIBE PHLOEOSININI

Page 236 **Phloeosinini.** Add:
REFERENCES: **(tx)** Lombardero 1994:183; Pfeffer 1994c:57.

Genus **Phloeocranus** Schedl

Page 236 ***bruchoides*** Schedl. Add:
HOSTS: *Litsea polyantha.*
REFERENCES: Schedl 1979c:48.

Genus **Phloeoditica** Schedl

Page 236 ***curtus*** (Eggers). Add:
DISTRIBUTION: ASIA: Sri Lanka.
REFERENCES: **(tx)** Schedl 1979c:72.

Genus **Dendrosinus** Chapuis

Page 236 ***bourreriae*** Schwarz. Add:
DISTRIBUTION: NORTH AMERICA: **Bahamas**.
REFERENCES: **(ds)** Atkinson & Peck 1994:319. **(hb)** Atkinson & Peck 1994:319.

Page 237 ***globosus*** (Eichhoff). Add:
REFERENCES: **(tx)** Schedl 1979c:106.

Page 237 ***transversalis*** Blandford. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Tamaulipas).
REFERENCES: **(tx)** Wood, Stevens, & Lezama 1991a:130.

Genus **Cladoctonus** Strohmeyer

Page 238 ***affinis*** Strohmeyer. Add:
DISTRIBUTION: AFRICA: Côte d'Ivoire, South Africa.

Page 238 *nonseptis* Schedl (synonym of ***banosus*** (Eggers)). Add:
REFERENCES: **(tx)** Schedl 1979c:171.

Page 238 ***contractus*** Schedl. Add:
REFERENCES: **(tx)** Schedl 1979c:64.

Page 238 ***cubensis*** (Wood). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Morelos, Tamaulipas).

Page 238 ***eggersi*** Wichmann. Add:
DISTRIBUTION: AFRICA: South Africa, Sudan.

Page 238 ***elongatus*** Schedl. Add:
DISTRIBUTION: AFRICA: Ghana.

Page 239 ***interruptus*** (Eggers). Add:
DISTRIBUTION: NORTH AMERICA: **Grand Cayman Island**.

Add species: *_**angustostriatus**_ Bright & Poinar 1994:176. Holotype (♀); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:177,179.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: (**tx**) Bright & Poinar 1994.

*_**ruber**_ Bright & Poinar 1994:176. Holotype (♀); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:177,179.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: (**tx**) Bright & Poinar 1994.

Genus **Phloeosinopsioides** Schedl

Page 239 ***leai*** (Schedl). Add:
FIGURES: Zimmerman 1992:639 (adult).
REFERENCES: (**ds**) Schedl 1964c:305.

Genus **Phloeosinus** Chapuis

Page 239 **Phloeosinus** Chapuis. Add:
KEYS: Lombardero 1994:184 (to species in northwest Spain); Pfeffer 1994c:57 (to Palearctic species); Yin, Huang, & Li 1984:66 (to Chinese species).
REFERENCES: (**ds**) Pfeffer 1994c:57; Yin, Huang, & Li 1984:66. (**tx**) Lombardero 1994:184; May 1993:95; Pfeffer 1989a:32, 1994c:57; Yin, Huang, & Li 1984:66.

Page 239 *_Phloeosinites_ Schedl (synonym of **Phloeosinus** Chapuis). Add:
REFERENCES: (**ds**) Carpenter 1992:317.

Page 240 ***abietis*** Tsai & Yin. Add:
FIGURES: Yin, Huang, & Li 1984:72 (elytral declivity).
REFERENCES: (**ds**) Yin, Huang, & Li 1984:72. (**tx**) Yang & Sun 1991:66; Yin, Huang, & Li 1984:72.

Page 240 ***acatayi*** Schedl. Add *cedri libani* Balachowsky as a synonym. Add:
DISTRIBUTION: ASIA: Syria.
REFERENCES: (**bv**) Chararas, Ducauze, & Revolon 1978b. (**ds**) Pfeffer 1994c:59,62. (**tx**) Knizek 1994; Pfeffer 1994c:59,62.

Page 240 ***armatus*** Reitter. Add:
FIGURES: Pfeffer 1994c:268 (elytral declivity).
DISTRIBUTION: ASIA: Jordan. EUROPE: Greece.

HOSTS: *Juniperus communis, J. oxycedrus, Thujae occidentalis, T. orientalis.*
REFERENCES: **(ds)** Pfeffer 1994c:58,60. **(tx)** Pfeffer 1994c:58,60.

Page 241 ***australis*** Schedl. Add:
REFERENCES: **(tx)** Schedl 1797c:32.

Page 241 ***baumanni*** Hopkins. Add:
HOSTS: *Cupressus sempervirens, Taxodium obregon.*
REFERENCES: **(cn)** Alatorre Rosas 1976. **(ec)** Alatorre Rosas 1976.

Page 241 ***bicolor*** (Brulle). Add:
FIGURES: Lombardero 1994:187, Plate 3 (adult features, aedeagus, gallery [as *aubei*]); Pfeffer 1994c:283 (elytral declivity [as *aubei*]), 306 (gallery); Xiao 1992:630 (adult, gallery); Yin, Huang, & Li 1984:67 (elytral declivity).
DISTRIBUTION: AFRICA: Ethiopia, Kenya. ASIA: China, Cyprus, Iran. ATLANTIC ISLANDS: Canary Islands. NORTH AMERICA: Greenland.
HOSTS: *Callitris* sp., *Cephalotaxus fortunei, Chamaecyparis lawsoniana, C.* sp., *Cupressus macrocarpa, C. sempervirens, Juniperus communis, J. excelsa, J. foetidissima, J. macrocarpa, J. phoenicea, J. sabina, Oxycedrus* sp., *Sequoia gigantea, Taxodium distichum, Tetraclinis articulata, Thujae occidentalis, T. orientalis, Thujopsis dolobrata, Wellingtonia* sp.
REFERENCES: **(bv)** Chararas, Ducauze, & Revolon 1978b. **(ds)** Balazuc 1984:309; Bourdonné & Bordy 1993:89; Winter 1991a; Yin, Huang, & Li 1984:66. **(tx)** Yin, Huang, & Li 1984:66.

Page 242 *aubei* Perris (synonym of ***bicolor*** (Brulle)). Add:
REFERENCES: **(ds)** Lombardero 1994:185; Pfeffer 1994c:61; Xiao 1992:630. **(hb)** Koch 1992:157. **(tx)** Lombardero 1994:185; Pfeffer 1994c:61; Xiao 1992:630.

Page 243 ***camphoratus*** Tsai & Yin. Add:
FIGURES: Yin, Huang, & Li 1984:74 (elytral declivity).
REFERENCES: **(ds)** Yin, Huang, & Li 1984:73. **(tx)** Yang & Sun 1991:66; Yin, Huang, & Li 1984:73.

Page 243 ***canadensis*** Swaine. Add:
FIGURES: Bright 1976d:83 (elytral declivity).
HOSTS: *Thujia* should be *Thujae*.
REFERENCES: **(ds)** Dearborn & Donahue 1993:79; Laplante et al. 1991:115; Larochelle 1979:50.

Page 244 ***cedri*** Brisout. Add:
FIGURES: Pfeffer 1994c:268 (elytral declivity).
DISTRIBUTION: AFRICA: Morocco.
REFERENCES: **(bv)** Chararas, Ducauze, & Revolon 1978b. **(ds)** Pfeffer 1994c:59,61. **(tx)** Pfeffer 1994c:59,61.

Page 244 *cedri libani* Balachowsky. Move to ***Phloeosinus acatayi*** Schedl as a synonym. Add:
SYNONYMY: Knizek 1994.

Page 245 ***cupressi*** Hopkins. Add:
FIGURES: Kuschel 1990:100 (adult); May 1993:206 (larval characters); Zimmerman 1992:629 (adult).
HOSTS: *Chamaecyparis lawsoniana, Cupressus torulosa.*
REFERENCES: **(an)** May 1993:96. **(ds)** Kuschel 1990:76; Spiller & Wise 1982:179. **(ec)** May 1993:95. **(hb)** May 1993:95. **(tx)** May 1993:95; Naumann 1993:160.

Page 246 ***dentatus*** (Say). Under HOSTS change *silvicola* to *silicicola.*

Page 247 ***gillerforsi*** Bright. Add:
REFERENCES: **(ds)** Borges 1990:116, 1992:36,55; Gillerfors 1988.

Page 247 ***granulipennis*** Schedl. Add:
REFERENCES: **(tx)** Schedl 1979c:111.

Page 247 ***henschi*** Reitter. Add:
FIGURES: Pfeffer 1994c:268 (antennal club).
DISTRIBUTION: EUROPE: Greece.
HOSTS: *Cupressus sempervirens pyramidalis, Juniperus oxycedrus, J. phoenicea.*
REFERENCES: **(ds)** Pfeffer 1994c:62. **(tx)** Pfeffer 1994c:62.

Page 248 ***hoferi*** Blackman. Add:
DISTRIBUTION: NORTH AMERICA: United States (Idaho, Montana, Oregon, South Dakota).
REFERENCES: **(ds)** Furniss et al. 1992:374. **(hb)** Furniss et al. 1992:374.

Page 248 ***hopehi*** Schedl. Add:
FIGURES: Yin, Huang, & Li 1894:67 (elytral declivity).
REFERENCES: **(ds)** Yin, Huang, & Li 1984:67. **(tx)** Schedl 1979c:119; Yin, Huang, & Li 1984:67.

Page 249 ***keeni*** Blackman. Add:
REFERENCES: **(ds)** Hutacharern et al. 1988:30.

Page 249 ***machilus*** (Schedl). Add:
FIGURES: Yin, Huang, & Li 1984:73 (elytral declivity).
REFERENCES: **(tx)** Schedl 1979c:143; Yang & Sun 1991:66.

Page 249 *cinnamomi* Tsai & Yin (synonym of ***machilus*** (Schedl)). Add:
REFERENCES: **(ds)** Yin, Huang, & Li 1984:72. **(tx)** Yang & Sun 1991:66; Yin, Huang, & Li 1984:72.

Page 250 ***perlatus*** Chapuis. Add:
FIGURES: Nakane et al. 1963:pl. 191; Yin, Huang, & Li 1984;71 (elytral declivity, gallery).
HOSTS: *Quercus gilva.*
REFERENCES: **(ds)** Yin, Huang, & Li 1984:70. **(tx)** Yin, Huang, & Li 1984:70.

Page 250 ***pini*** Swaine. Add:
FIGURES: Bright 1976d:83 (elytral declivity).
REFERENCES: **(ds)** Laplante et al. 1991:115; Schwert 1992:81,84.

Page 251 ***punctatus*** LeConte. Add:
REFERENCES: **(ds)** Parsons et al. 1991:59.

Page 252 **_*rehi_** (Hagedorn). Add:
REFERENCES: **(ds)** Carpenter 1992:317.

Page 252 ***rudis*** Blandford. Add:
FIGURES: Pfeffer 1994c:268 (elytral declivity).
DISTRIBUTION: Europe: Italy (introduced).
HOSTS: *Chamaecyparis pisifera, Thujae orientalis, T. standishii.*
REFERENCES: **(ds)** Lee et al. 1990:17; Pfeffer 1994c:59,61. **(tx)** Pfeffer 1994c:59,61.

Page 253 ***scopulorum*** Swaine. Under FIGURES, change "ceclivity" to "declivity".

Page 253 ***scopulorum scopulorum***. Add:
REFERENCES: **(ds)** Furniss et al. 1992:374. **(hb)** Furniss et al. 1992:374.

Page 253 ***sequoiae*** Hopkins. Add:
REFERENCES : **(ds)** Parsons et al. 1991:59.

Page 254 ***serratus*** (LeConte). Add:
HOSTS: *Cupressus lusitanica.*
REFERENCES: **(ds)** Garraway 1993.

Page 255 ***setosus*** Bruck. Add:
HOSTS: *Cupressus goveniana, Libocedrus decurrens.*

Page 255 **_*sexspinosus_** (Schedl). Add:
REFERENCES: **(ds)** Schedl 1970c. **(tx)** Schedl 1970c.

Page 255 ***shensi*** Tsai & Yin. Add:
FIGURES: Yin, Huang, & Li 1984:68 (♂ elytral declivity).
REFERENCES: **(ds)** Yin, Huang, & Li 1984:68. **(tx)** Yang & Sun 1991:66; Yin, Huang, & Li 1984:68.

Page 255 ***sinensis*** Schedl. Add:
FIGURES: Xiao 1992:631 (elytral declivity, gallery); Yin, Huang, & Li 1984:69 (♂ elytral declivity).
DISTRIBUTION: ASIA: China.
NOTES: Schedl 1979c:230 (citation of holotype invalid).
REFERENCES: **(bv)** Zhao, Ying, & Chao 1988. **(cn)** Su & Zhou 1988; Zhao, Ying, & Chao 1988. **(ds)** Xiao 1992:631; Yin & Huang 1993; Yin, Huang, & Li 1984:69. **(ec)** Su & Zhou 1988. **(hb)** Su & Zhou 1988; Zhao, Ying, & Chao 1988. **(tx)** Schedl 1979c:230; Xiao 1992:631; Yin & Huang 1993; Yin, Huang, & Li 1984:69.

Page 256 ***swainei*** Bruck. Add:
HOSTS: *Cupressus goveniana.*

Page 256 ***tacubayae*** Hopkins. Add:
DISTRIBUTION: NORTH AMERICA: El Salvador.
HOSTS: *Taxodium obregon.*

Page 256 ***taxodii taxodii*** Blackman. Add:
REFERENCES: **(ds)** Atkinson & Peck 1994:319. **(hb)** Atkinson & Peck 1994:319.

Page 256 ***thujae*** (Perris). Add:

FIGURES: Lombardero 1994:190, Plate 3 (adult features, aedeagus, gallery); Pfeffer 1994c:268 (adult), 283 (antennal club, elytral declivity).

DISTRIBUTION: ATLANTIC ISLANDS: Canary Islands. EUROPE: Belgium, Netherlands.

HOSTS: *Callitris articulata, Chamaecyparis lawsoniana, C. pisifera, Cupressus lusitanica, C. pseudosibia, C. sempervirens, C. sempervirens pyramidalis C. thurifera, Juniperus communis, J. nana, J. sabina, Plathycladus orientalis, Sequoia gigantea, Thujae occidentalis, T. orientalis, T. plicata, Thujopsis dolobrata, Tsuga heterophylla.*

NOTES: Pfeffer 1994c:60 (recognizes two subspecies, *thujae* and *serrifer*).

REFERENCES: **(ds)** Balazuc 1984:309; Burakowski et al. 1992:46; Lombardero 1994:189; Michalski & Ratajczak 1994; Pfeffer 1994c:60,62; Titovsek 1983:399. **(ec)** Michalski & Ratajczak 1994. **(hb)** Koch 1992:157. **(tx)** Burakowski et al. 1992:46; Lombardero 1994:189; Pfeffer 1994c:60,62.

Page 258 *serrifer* Wichmann (synonym of ***thujae*** (Perris)). Add:

NOTES: Pfeffer 1994c:60 (treats this taxon as a subspecies of *thujae*).

REFERENCES: **(ds)** Pfeffer 1994c:60,62. **(tx)** Pfeffer 1994c:60,62.

Page 258 ***turkestanicus*** Semenov. Add:

FIGURES: Aksent'yev 1994:4 (larval features); Pfeffer 1994c:268 (adult).

HOSTS: *Juniperus excelsa, J. polycarpa, J. sabina, J. semiglobosa, J. seravschanica, J. thalasica, J. turcomanica, J. turkestanica,.*

REFERENCES: **(an)** Aksent'yev 1994:3. **(ds)** Pfeffer 1994c:59,60. **(tx)** Pfeffer 1994c:59,60.

Page 258 ***vandykei*** Swaine. Add:

HOSTS: *Thujae plicata.*

Add species: ***pfefferi*** Kinzek 1994:124. Holotype (♂); Cyprus, Cedar Valley; PMNS, Prague.

FIGURES: Kinzek 1994:125.

DISTRIBUTION: EUROPE: Cyprus.

HOSTS: *Cedrus brevifolia.*

REFERENCES: **(tx)** Kinsek 1994.

New Genus ***Paleosinus** Bright & Poinar 1994:178. Type species: ***Paleosinus fossulatus*** Bright & Poinar, monotypic.

REFERENCES: **(tx)** Bright & Poinar 1994:178.

****fossulatus*** Bright & Poinar 1994:178. Holotype (♂); Dominican Republic amber; GOPC, Corvallis.

FIGURES: Bright & Poinar 1994:179,181.

DISTRIBUTION: NORTH AMERICA: Dominican Republic.

REFERENCES: **(tx)** Bright & Poinar 1994.

New Genus ***Protosinus** Bright & Poinar 1994:180. Type species: ***Protosinus hispaniolensis*** Bright & Poinar 1994, monotypic.

REFERENCES: **(tx)** Bright & Poinar 1994:180.

hispaniolensis Bright & Poinar 1994:180. Holotype (sex?); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:181.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: (**tx**) Bright & Poinar 1994.

Genus **Hyledius** Sampson

Page 259 ***birmanus*** (Eggers). Add:
REFERENCES: (**tx**) Schedl 1979c:40.

Page 259 ***borneensis*** (Schedl). Add:
REFERENCES: (**tx**) Schedl 1979c:44.

Page 259 ***brunneus*** (Browne). Add:
HOSTS: *Podocarpus* sp.
REFERENCES: (**ds**) Ohno 1990c:84.

Page 259 ***ceylonicus*** (Schedl). Add:
REFERENCES: (**tx**) Schedl 1979c:56.

Page 260 ***cribratus*** (Blandford). Add:
HOSTS: *Myristica fragrans*.
REFERENCES: (**ds**) Ohno 1990c:84.

Page 260 ***nitidicollis*** (Motschulsky). Add:
DISTRIBUTION: ASIA: Thailand.

Page 260 *latus* Eggers (synonym of ***nitidicollis*** (Motschulsky)). Add:
REFERENCES: (**ds**) Ohno 1990c:84.

Page 260 *philippinensis* Schedl (synonym of ***nitidicollis*** (Motschulsky)). Add:
REFERENCES: (**tx**) Schedl 1979c:192.

Page 261 ***penangensis*** (Schedl). Add:
REFERENCES: (**tx**) Schedl 1979c:187.

Page 261 ***subcarinatus*** (Schedl). Add:
REFERENCES: (**tx**) Schedl 1979c:240.

Page 261 ***vilis*** (Blandford). Add *nanus* Browne as a synonym. Add:
DISTRIBUTION: ASIA: Malaysia (Penang), Singapore, Thailand.
HOSTS: *Cratoxylon cochinchinensis*, Dipterocarpaceae log, Myristicaceae sp.
REFERENCES: (**ds**) Ohno 1990c:84. (**tx**) Beaver 1995:198.

Add species: *nanus* Browne 1975:293 (*Phloeosinus*). Holotype (♂); Thailand, Chiang Mai, 300 m; BMNH. Add:
NOTES: 1. Omitted from 1992 catalog.
2. Move to ***vilis*** (Blandford) as a synonym.
REFERENCES: (**ds**) Beaver & Browne 1978:592. (**ec**) Beaver & Browne 1978:592. (**hb**) Beaver & Browne 1978:592. (**tx**) Beaver & Browne 1975:293; Beaver 1995:198.

kesiyae (Browne) 1975:292 (*Phloeosinus*). (**NEW COMBINATION**). Holotype (♂); Thailand, Chiang Mai, Doi Pui, 1400 m; BMNH.
DISTRIBUTION: ASIA: Thailand.
HOSTS: *Pinus khasya*.

NOTES: Originally described in *Phloeosinus*, here placed in *Hyledius*. Omitted from 1992 catalog.
REFERENCES: (**tx**) Beaver & Browne 1975:292.

Genus **Pseudochramesus** Blackman

Page 261 ***abbreviatus*** Schedl. Add:
REFERENCES: (**tx**) Marinoni et al. 1992:125.

Page 262 ***brasiliensis*** Schedl. Add:
HOSTS: *Dalbergia* sp.
REFERENCES: (**tx**) Marinoni et al. 1992:125.

Page 262 ***duplosquamosus*** Schedl. Add:
REFERENCES: (**tx**) Schedl 1979c:86.

Page 262 ***jaliscoensis*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Guerrero).

Page 262 ***opacus*** Schedl. Add:
HOSTS: *Apuleia molaris*.
REFERENCES: (**tx**) Marinoni et al. 1992:125.

Page 262 ***setifer*** Schedl. Add:
REFERENCES: (**tx**) Schedl 1979c:226.

Genus **Chramesus** LeConte

Page 262 **Chramesus** LeConte. Add:
KEYS: Wood, Stevens, & Lezama 1991a:146 (to Costa Rican species).
REFERENCES: (**ec**) Carrano-Moreira & Pedrosa-Macedo 1994. (**tx**) Wood, Stevens, & Lezama 1991a:146.

Page 263 ***aberrans*** Schedl. Add:
REFERENCES: (**tx**) Marinoni et al. 1992:123.

Page 263 ***acacicolens*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:148. (**tx**) Wood, Stevens, & Lezama 1991a:148.

Page 263 ***asperatus*** Schaeffer. Add:
DISTRIBUTION: NORTH AMERICA: United States (**California**).
HOSTS: *Amorpha californica, Celtis* sp., *Quercus* sp., *Rhamnus* sp.

Page 264 ***cecropiae*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:147. (**tx**) Wood, Stevens, & Lezama 1991a:147.

Page 264 ***chapuisi*** LeConte. Add:
DISTRIBUTION: NORTH AMERICA: United States (Illinois, **Oklahoma**).
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:463; Weber & McPherson 1991:54. (**hb**) Noguera-Martinez & Atkinson 1990:463.

Page 265 ***denticulatus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:147. **(tx)** Wood, Stevens, & Lezama 1991a:147.

Page 265 ***globosus*** Hagedorn. Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.

Page 265 ***gracilis*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:147. **(tx)** Wood, Stevens, & Lezama 1991a:147.

Page 265 ***granulatus*** (Eggers). Add:
REFERENCES: **(tx)** Schedl 1979c:110.

Page 266 ***hicoriae*** LeConte. Add:
DISTRIBUTION: NORTH AMERICA: United States (Florida).
HOSTS: *Celtis tenuifolia.*
REFERENCES: **(ds)** Bright, Skidmore, & Dunster 1994; Deyrup & Atkinson 1987b:68; Laplante et al. 1991:115; Larochelle 1979:50. **(hb)** Weber & McPherson 1991.

Page 266 ***ingens*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:147. **(tx)** Wood, Stevens, & Lezama 1991a:147.

Page 267 ***minulus*** Wood. Add:
HOSTS: *Acacia glomerosa.*

Page 267 ***opacicollis*** Eggers. Add:
FIGURES: Bright 1972d:35 (lateral habitus), 74 (antenna).
DISTRIBUTION: NORTH AMERICA: **Cuba, Dominica, Grenada, Jamaica, Martinique**.

Page 267 ***parcus*** Wood: Add:
HOSTS: *Xylopia sericea.*

Page 268 ***pumilus*** (Chapuis). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:147. **(tx)** Wood, Stevens, & Lezama 1991a:147.

Page 268 ***rotundatus*** (Chapuis). Add:
DISTRIBUTION: NORTH AMERICA: **Martinique, Puerto Rico**.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:463.

Page 269 ***setiger*** Schedl. Add:
REFERENCES: **(tx)** Marinoni et al. 1992:123.

Page 269 ***signatipennis*** Schedl. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:147. **(tx)** Wood, Stevens, & Lezama 1991a:147.

Page 269 ***tibialis*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: **Honduras**.
HOSTS: *Acacia glomerosa.*

Page 270 ***varius*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: United States (Texas).
REFERENCES: **(ds)** Atkinson et al. 1991:156.

Page 270 ***vastus*** Wood. Add:

REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991a:147. (**tx**) Wood, Stevens, & Lezama 1991a:147.

Page 270 ***xalapae*** Atkinson. Add:

FIGURES: Atkinson 1989a:62 (habitus, frons).

DISTRIBUTION: NORTH AMERICA: Mexico (**Veracruz**).

REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:463. (**hb**) Noguera-Martinez & Atkinson 1990:463.

TRIBE HYPOBORINI

Page 271 **Hypoborini**. Add:

KEYS: Israelson 1990 (to Macronesian species); Lombardero 1994:193 (to genera in northwest Spain); Pfeffer 1994c:84 (to Palearctic genera).

REFERENCES: (**tx**) Israelson 1990; Lombardero 1994:193; Pfeffer 1994c:84.

Genus **Zygophloeus** Schedl

Page 271 ***australis*** Schedl. Add:

FIGURES: Zimmerman 1992:641 (adult).

Genus **Chaetophloeus** LeConte

Page 272 ***heterodoxus*** (Casey). Add:

HOSTS: *Flourensia cernua*.

REFERENCES: (**cn**) Campbell, Sarazin, & Lyons 1989:364; Johnson & Curtis 1986. (**ds**) Campbell, Sarazin, & Lyons 1989:364; Richerson & Boldt 1995:590. (**ec**) Tomalak, Welch, & Galloway 1989b. (**hb**) Campbell, Sarazin, & Lyons 1989:364.

Page 273 ***insularis*** (Blackman). Add:

REFERENCES: (**ds**) Atkinson & Peck 1994:319. (**hb**) Atkinson & Peck 1994:319.

Page 273 ***parkinsoniae*** (Blackman). Add:

REFERENCES: (**ec**) Dajoz 1993.

Page 273 ***penicillatus*** (Bruck). Add:

DISTRIBUTION: NORTH AMERICA: Mexico (Hidalgo, Nuevo León).

Page 274 ***phoradendri*** Wood. Add:

REFERENCES: (**tx**) Wood, Stevens, & Lezama 1991a:131.

Page 274 ***struthanthi*** Wood. Add:

REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:463. (**hb**) Noguera-Martinez & Atkinson 1990:463.

Genus **Liparthrum** Wollaston

Page 274 **Liparthrum** Wollaston. Add:
KEYS: Lombardero 1994:194 (to species in northwest Spain); Pfeffer 1994c:86 (to Palearctic species).
REFERENCES: **(tx)** Lombardero 1994:194; Pfeffer 1994c:86.

Page 275 ***arnoldi*** Semenov. Add:
FIGURES: Aksent'yev 1992(1993):125 (larval characters); Pfeffer 1994c:310 (gallery).
DISTRIBUTION: EUROPE: Bulgaria, Romania.
REFERENCES: **(ds)** Pfeffer 1994c:90. **(tx)** Pfeffer 1994c:90.

Page 275 *babadjanidis* Eggers (synonym of ***arnoldi*** Semenov). Add:
REFERENCES: **(an)** Aksent'yev 1992(1993):127. **(ds)** Aksent'yev 1992(1993):127. **(hb)** Aksent'yev 1992(1993):127.

Page 275 ***americanum*** Wood. Add:
HOSTS: *Ficus* sp.
REFERENCES: **(tx)** Wood, Stevens, & Lezama 1991a:131.

Page 275 ***artemisiae*** Wollaston. Add:
FIGURES: Israelson 1990:8 (aedeagus).
DISTRIBUTION: ATLANTIC ISLANDS: Canary Islands.
HOSTS: *Artemisia canariensis*.
REFERENCES: **(ds)** Israelson 1990:4. **(tx)** Israelson 1990:4.

Page 275 ***bartschti*** Muhl. Add:
DISTRIBUTION: EUROPE: Czechoslovakia, Hungary, Slovakia.
HOSTS: *Abies pectinata*, *Acer* sp., *Populus* sp., *Tilia* sp.
REFERENCES: **(ds)** Franz 1972:323; Pfeffer 1994c:90; Schedl 1981:64. **(hb)** Koch 1992:158. **(tx)** Pfeffer 1989a:40, 1994c:90; Schedl 1981:64.

Page 276 ***bicaudatum*** Wollaston. Add:
FIGURES: Israelson 1990:9 (aedeagus).
REFERENCES: **(ds)** Israelson 1990:5. **(tx)** Israelson 1990:5.

Page 276 ***bituberculatum*** Wollaston. Add:
FIGURES: Israelson 1990:8 (aedeagus).
DISTRIBUTION: ATLANTIC ISLANDS: Canary Islands.
HOSTS: Lauraceae sp.
REFERENCES: **(ds)** Israelson 1990:4. **(tx)** Israelson 1990:4.

Page 276 ***colchicum*** Semenov. Add:
FIGURES: Lombardero 1994:196, Plate 3 (adult features, aedeagus, gallery).
DISTRIBUTION: EUROPE: Spain.
REFERENCES: **(ds)** Lombardero 1994:195; Lombardero & Novoa 1994; Pfeffer 1994c:89. **(tx)** Lombardero 1994:195; Pfeffer 1994c:89.

Page 276 ***curtum*** Wollaston. Add:
FIGURES: Israelson 1990:9 (aedeagus).
DISTRIBUTION: ATLANTIC ISLANDS: Azores.
HOSTS: *Ceratonia siliqua*, *Rosa* sp.

REFERENCES: (**ds**) Borges 1990:116; Israelson 1990:4; Titovsek 1983:399. (**tx**) Israelson 1990:4.

Page 276 *ciliatum* Eggers (synonym of ***curtum*** Wollaston). Add:
REFERENCES: (**tx**) Schedl 1979c:57.

Page 277 ***genistae*** (Aubé). Add:
FIGURES: Pfeffer 1994c:272 (details of elytra), 284 (vestiture, habitus), 310 (gallery).
HOSTS: *Anagyris foetida, Calycotoma villosa, Genista scorpius, Laburnum* spp., *Lygos monosperma, L. raetam, L. sphaerocarpi.*
NOTES: Pfeffer 1994c:88,89 (recognizes two subspecies, *genistae* and *georgi*).
REFERENCES: (**ds**) Pfeffer 1994c:88. (**tx**) Pfeffer 1994c:88.

Page 277 *cytisi* Eggers (synonym of ***genistae*** (Aubé)). Add:
NOTES: Schedl 1979c:75 (citation of holotype invalid).

Page 277 *peyrimhoffi* Pfeffer (synonym of ***genistae*** (Aubé)). Add:
REFERENCES: (**tx**) Schawaller 1994:38.

Page 277 ***inarmatum*** Wollaston. Add:
FIGURES: Israelson 1990:9 (aedeagus).
HOSTS: *Euphorbia* spp.
REFERENCES: (**ds**) Israelson 1990:5; Pfeffer 1994c:87. (**tx**) Israelson 1990:5; Pfeffer 1994c:87.

Page 277 ***laurivorum*** Schedl. Add:
REFERENCES: (**ds**) Pfeffer 1994c:87. (**tx**) Pfeffer 1994c:87; Schedl 1979c:137.

Page 278 ***loweanum*** Wollaston. Add:
FIGURES: Israelson 1990:9 (aedeagus).
REFERENCES: (**ds**) Israelson 1990:5. (**tx**) Israelson 1990:5.

Page 278 ***lowei*** Wollaston. Add:
FIGURES: Israelson 1990:9 (aedeagus).
REFERENCES: (**ds**) Israelson 1990:5. (**tx**) Israelson 1990:5.

Page 278 ***mandibulare*** Wollaston. Add:
FIGURES: Israelson 1990:8 (aedeagus); Lombardero 1994:200, Plate 3 (adult features, aedeagus, gallery); Lombardero & Novoa 1993 (habitus, various features, galleries).
DISTRIBUTION: ATLANTIC ISLANDS: Canary Islands. EUROPE: Guernsey (British Is.), Spain.
HOSTS: *Alnus glutinosa, Betula alba, B. celtiberica, Castanea sativa, Erica arborea, Euphorbia regis-jubae, Laburnum* spp., *Prunus laurocerasus, Quercus robur, Rosa* spp., *Rubus* spp.
NOTES: Israelson 1990:4 (*bituberculatum* var B Wollaston (synonymy).
REFERENCES: (**ds**) Israelson 1990:4; Lombardero 1994:197; Lombardero & Novoa 1993; Pfeffer 1994c:89. (**hb**) Lombardero & Novoa 1993. (**tx**) Israelson 1990:4; Lombardero 1994:197; Lombardero & Novoa 1993; Pfeffer 1994c:89.

Page 278 ***mori*** (Aubé). Add:
FIGURES: Pfeffer 1994c:271 (details of elytra, pronotum), 310 (gallery).

DISTRIBUTION: AFRICA: Morocco.
HOSTS: *Ficus carica*, *Viscum laxum laxum* on *Pinus maritima*.
REFERENCES: **(ec)** Bernabò 1993. **(ds)** Pfeffer 1994c:87; Titovsek 1983:399. **(hb)** Bernabò 1993. **(tx)** Pfeffer 1994c:87.

Page 279 *corsicum* Eichhoff (synonym of ***mori*** (Aubé)). Add:
NOTES: Pfeffer 1994c:88 (treats this taxon as a valid species).
REFERENCES: **(ds)** Pfeffer 1994c:88. **(tx)** Pfeffer 1994c:88.

Page 279 *dalmatinum* Eggers (synonym of ***mori*** (Aubé)). Add:
REFERENCES: **(tx)** Schedl 1979c:75.

Page 279 ***nigrescens*** Wollaston. Add:
FIGURES; Israelson 1990:8 (aedeagus).
DISTRIBUTION: AFRICA: Morocco.
HOSTS: *Adenocarpus foliolosus*, *Laurus nobilis*, *Spartocystus supranubius*.
REFERENCES: **(ds)** Israelson 1990:5; Schedl 1972n:349. **(tx)** Israelson 1990:5.

Page 279 ***palaquius*** (Schedl). Add:
HOSTS: *Cratoxylum arborescens*.
REFERENCES: **(ds)** Ohno 1990c:84.

Page 279 ***thevetiae*** Wood. Add:
FIGURES: Atkinson et al. 1986:55 (adults).

Add species: *balachowskyi* Pfeffer 1994c(1995):87.
Proposed to replace misidentified *L. corsicum* of Balachowsky 1949a:154. Action invalid, name unavailable.

canum Israelson 1990:6. Holotype ♂; Canary Islands, La Palma, 500 m; G. Israelson, Lund, Sweden.
FIGURES: Israelson 1990:9 (aedeagus).
DISTRIBUTION: ATLANTIC ISLANDS: Canary Islands (Las Palmas, Hierro, Gomera, Tenerife, Gran Canaria, Lanzarote).
HOSTS: *Argyranthemum frutescens*, *Asteriscus intermedius*, *Echium aculeatum*.
REFERENCES: **(tx)** Israelson 1990:9.

semidegener Israelson 1990:7. Holotype (♂); Madeira, Ribeiro Frio, 1000 m; G. Israelson, Lund, Sweden.
FIGURES: Israelson 1990:9 (aedeagus).
DISTRIBUTION: ATLANTIC ISLANDS: Madeira Islands (Madeira).
HOSTS: *Teline maderensis*.
REFERENCES: **(tx)** Israelson 1990:9.

tongatapui (Schedl) from **Mimiophthorus**. Add:
DISTRIBUTION: OCEANIA: Tonga (Tongatapu).
REFERENCES: **(tx)** Beaver 1987b:68.

Genus **Hypoborus** Erichson

Page 279 **Hypoborus** Erichson. Add:
REFERENCES: **(tx)** Lombardero 1994:203.

Page 280 ***ficus*** Erichson. Add:

FIGURES: Aksent'yev 1992(1993):125 (larval characters); Lombardero 1994:204, Plate 4 (adult features, aedeagus, gallery); Pfeffer 1994c:284 (vestiture, elytral declivity), 307 (gallery).

DISTRIBUTION: AFRICA: Egypt, Upper Volta. ATLANTIC ISLANDS: Canary Islands, Madeira Islands. ASIA: Cypress, Iran, Jordan. EUROPE: Austria, Corsica, Portugal. NORTH AMERICA: Greenland.

HOSTS: *Ailanthus altissima, Styrax officinalis, Vitis vinifera.*

REFERENCES: **(an)** Aksent'yev 1992(1993):126. **(ds)** Aksent'yev 1992(1993):126; Fernandez Fernandez 1992:525; Israelson 1990:3; Lombardero 1994:203; Pfeffer 1994c:85; Titovsek 1983:399. **(hb)** Aksent'yev 1992(1993):126. **(tx)** Israelson 1990:3; Lombardero 1994:203; Pfeffer 1994c:85.

Genus **Styracoptinus** Wood

Page 281 ***cavipennis*** (Schedl). Add:

REFERENCES: **(tx)** Schedl 1979c:55.

Genus **Dacryostactus** Schaufuss

Page 282 ***kolbei*** Schaufuss. Add:

DISTRIBUTION: AFRICA: South Africa.

TRIBE POLYGRAPHINI

Page 283 **Polygraphini**. Add:

KEYS: Pfeffer 1994c:76 (to Palearctic genera).

REFERENCES: **(tx)** Pfeffer 1994c:76; Yin, Huang, & Li 1984:82.

Genus **Serrastus** Nunberg

Page 283 ***similis*** (Eggers). Add:

DISTRIBUTION: AFRICA: Cameroon, Equatorial Guinea, Ghana.

HOSTS: *Bosqueia angolensis, Cassia siamea.*

Genus **Polygraphus** Erichson

Page 283 **Polygraphus** Erichson. Add:

KEYS: Lekander 1968:37 (to larvae of Scandinavian species); Nobuchi 1979b (to Japanese species); Pfeffer 1994a:159 (to Central European species), 1994c:77 (to Palearctic species); Yin, Huang, & Li 1984:82 (to Chinese species).

REFERENCES: **(an)** Lekander 1968:35. **(ec)** Pechacek & Kristin 1993. **(tx)** Lekander 1968:35; Pfeffer 1994a:159, 1994c:77; Yin, Huang, & Li 1984:82.

Page 284 ***amoenus*** (Schaufuss). Add:

HOSTS: *Ravensara* sp.

Page 285 ***angustus*** Tsai & Yin. Add:

FIGURES: Yin, Huang, & Li 1984:87 (♀ head).

REFERENCES: **(ds)** Yin, Huang, & Li 1984:87; **(tx)** Yang & Sun 1991:66; Yin, Huang, & Li 1984:87.

Page 285 ***aterrimus*** Strohmeyer. Add:
DISTRIBUTION: ASIA: Indonesia (Sumatra).
HOSTS: *Pinus khasya, P. merkusii.*
REFERENCES: (**ds**) Hutacharern et al. 1988:30.

Page 285 ***basutoae*** Schedl. Add:
DISTRIBUTION: AFRICA: Lesotho.
HOSTS: *Harpephyllum caffrum, Ochna oconnorii.*

Page 285 ***brunneus*** Eggers. Add:
DISTRIBUTION: AFRICA: Equatorial Guinea.

Page 286 ***convexifrons*** Wood. Add:
REFERENCES: (**ds**) Laplante et al. 1991:115.

Page 286 ***coronatus*** Eggers. Add:
DISTRIBUTION: AFRICA: Equatorial Guinea.

Page 286 ***fulvipennis*** Niisima. Add:
HOSTS: *Abies mariesii.*

Page 286 ***gracilis*** Niisima. Add:
FIGURES: Nobuchi 1979b:pl. 3 (adult).

Page 286 ***grandiclava*** Thompson. Add:
FIGURES: Pfeffer 1994c:282 (vestiture, antenna, habitus).
HOSTS: *Cerasus avium, C. vulgaris, Picea abies, P. excelsa, Pinus cembra, P. leucodermis, P. montana, P. mugo, P. pumila, P. strobus, P. sylvestris, Prunus domestica, P. persica.*
REFERENCES: (**ds**) Burakowski et al. 1992:47; Gogniat 1991:23; Pfeffer 1994c:78. (**hb**) Koch 1992:155. (**tx**) Burakowski et al. 1992: 47; Pfeffer 1994c:78.

Page 287 ***granulatus*** Eggers. Add:
DISTRIBUTION: AFRICA: Central African Republic, Rwanda.
HOSTS: *Carapa procera, Entandrophragma angolense, E. excelsum, E. utile, Khaya anthotheca, K. ivorensis.*

Page 288 ***granulifer*** Eggers. Add:
DISTRIBUTION: AFRICA: Cameroon, Côte d'Ivoire, Malawi, Nigeria, Rwanda.
HOSTS: *Bosqueia angolensis, Brachystegia longifolia, Carapa procera, Entandrophragma angolense, E. excelsum, Khaya anthotheca, K. ivorensis, Sorindeia* sp.
REFERENCES: (**ds**) Medler 1980:291. (**ec**) Boucek 1980:75.

Page 288 ***horyurensis*** Murayama. Add:
HOSTS: *Abies nephrolepsis, Larix leptolepis.*

Page 288 ***jezoensis*** Niisima. Add:
REFERENCES: (**cn**) Nishiguchi 1960a.

Page 289 ***junnanicus*** Sokanovskii. Add:
REFERENCES: (**tx**) Yin, Huang, & Li 1984:92.

Page 289 ***longifolia*** Stebbing. Add:
HOSTS: *Pinus excelsa.*

Page 289 ***major*** Stebbing. Add:

DISTRIBUTION: ASIA: Pakistan, Thailand.
HOSTS: *Pinus excelsa, P. khasya, Shorea asiamensis, S. obtusa.*
REFERENCES: (**ds**) Hutacharern et al. 1988:30. (**tx**) Yin, Huang, & Li 1984:90.

Page 290 ***militaris*** (Eggers). Add:

DISTRIBUTION: AFRICA: Côte d'Ivoire.
HOSTS: *Canarium* sp.

Page 290 ***natalensis*** Eggers. Add:

DISTRIBUTION: AFRICA: Rwanda.
HOSTS: *Rhus lancea, R. legatii.*

Page 290 ***nigrielytris*** Niisima. Add:

HOSTS: *Sorbus kamtschatkensis, S. sambucifolia.*

Page 291 ***occidentalis*** Schedl. Add:

DISTRIBUTION: AFRICA: Ghana.

Page 291 ***orientalis*** (Eggers). Add:

DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: (**ds**) Medler 1980:291.

Page 291 ***pini*** Stebbing. Add:

DISTRIBUTION: ASIA: Pakistan.
HOSTS: *Pinus longifolia, P. roxburghi, P. smithiana.*

Page 291 ***poligraphus*** (Linnaeus). Add:

FIGURES: Joly 1977:9 (gallery); Lekander 1968:155 (larval characters); Pfeffer 1994a:158 (frons, antenna), 1994c:282 (vestiture, antenna), 303 (gallery); Yin, Huang, & Li 1984:85 (adult).
HOSTS: *Abies alba, A. pectinata, Picea abies, P. excelsa, P. obovata, Pinus cembra, P. strobus, P. sylvestris, Prunus avium.*
REFERENCES: (**an**) Lekander 1968:35. (**bv**) Baader & Vité 1990; Otte 1989:239; Rauhut, Schmidt, & Schmidt 1993. (**cn**) Baader & Vité 1990; Eidmann, Lindelow, & Solbreck 1992; Kolk 1992; Trofimov & Lipatkin 1989. (**ds**) Balazy & Michalski 1962a:199; Burakowski et al. 1992:47; Gogniat 1991:23; Li, Shi, & Ao 1984:46; Michalski & Ratajczak 1994; Pfeffer 1994c:79; Titovsek 1983:396; Yin, Huang, & Li 1984:85. (**ec**) Heliövaara & Väisänen 1991; Hilt & Ammer 1994; Michalski & Ratajczak 1994; Michalski, Kaczmarek, & Ratajczak 1992a, 1992b:144; Otte 1989:239; Ounap 1992; Starzyk 1977; Yang 1989a. (**hb**) Balazy & Michalski 1962a:199; Koch 1992:155; Li, Shi, & Ao 1984:46. (**tx**) Burakowski et al. 1992:47; Lekander 1968; Li, Shi, & Ao 1984:46, 264; Pfeffer 1994a:158, 1994c:79; Yin, Huang, & Li 1984:85.

Page 295 *punctifrons* Thomson (synonym of ***poligraphus*** (Linnaeus)). Add:

REFERENCES: (**bv**) Muona & Rutanen 1993. (**ds**) Burakowski et al. 1992:49; Nilssen 1993; Pfeffer 1994c:80; Siitonen 1994; Winter 1991a. (**ec**) Muona & Rutanen 1993; Siitonen 1994. (**hb**) Koch 1992:155. (**tx**) Burakowski et al. 1992:49; Pfeffer 1994a:159, 1994c:80.

Page 295 *griseus* Eggers (synonym of ***poligraphus*** (Linnaeus)). Add:
REFERENCES: **(ds)** Pfeffer 1994c:79. **(tx)** Pfeffer 1994c:79.

Page 296 ***primus*** Wichmann. Add:
DISTRIBUTION: AFRICA: Côte d'Ivoire, Guinea.
HOSTS: *Canarium* sp.

Page 296 ***proximus*** Blandford. Add:
HOSTS: *Abies firma, A. holophylla, A. veitchii, Larix sibirica, Picea glehnii.*
REFERENCES: **(ds)** Pfeffer 1994c:78; Yin, Huang, & Li 1984:88; **(tx)** Pfeffer 1994c:78; Yin, Huang, & Li 1984:88.

Page 296 ***ruandae*** Schedl. Add:
DISTRIBUTION: AFRICA: Côte d'Ivoire.

Page 297 ***rudis*** Eggers. Add:
REFERENCES: **(ds)** Yin, Huang, & Li 1984:88. **(tx)** Yin, Huang, & Li 1984:88.

Page 297 *rudis likiangensis* Tsai & Yin (synonym of ***rudis*** Eggers). Add:
REFERENCES: **(tx)** Yang & Sun 1991:66.

Page 297 *rudis retiventriculus* Tsai & Yin (synonym of ***rudis*** Eggers). Add:
REFERENCES: **(tx)** Yang & Sun 1991:66.

Page 297 ***rufipennis*** (Kirby). Add:
DISTRIBUTION: NORTH AMERICA: United States (New Jersey).
REFERENCES: **(bv)** Bowers & Borden 1990,1992; Bowers, Borden, & Gries 1988; Bowers et al. 1991. **(cn)** Bowers & Borden 1992; Robertson 1990. **(ds)** Bain 1977b:16; Dearborn & Donahue 1993:78; Elias 1992a, 1992b, 1994:190, 230; Laplante et al. 1991:115; Larochelle 1979:50; Schwert 1992:81,84; Winter 1991a. **(ec)** Grissell 1983; Langor 1991; Tomalak, Welch, & Galloway 1990. **(hb)** Robertson 1990.

Page 298 ***sachalinensis*** Eggers. Add:
HOSTS: *Picea microsperma.*
REFERENCES: **(ds)** Yin, Huang, & Li 1984:84. **(tx)** Yin, Huang, & Li 1984:84.

Page 299 ***scalptor*** Schedl. Add:
REFERENCES: **(tx)** Schedl 1979c:221.

Page 299 ***setosus*** Schedl. Add:
REFERENCES: **(tx)** Schedl 1979c:226.

Page 299 ***sinensis*** Eggers. Add:
FIGURES: Li, Dang, & Shi 1977:191 (adult, gallery).
REFERENCES: **(ds)** Li, Dang & Shi 1977:71; Yin, Huang, & Li 1984:91. **(hb)** Li, Dang & Shi 1977:71. **(tx)** Yin, Huang, & Li 1984:91.

Page 299 ***squameus*** Yin & Huang. Add:
HOSTS: *Pinus yunnanensis.*
REFERENCES: **(hb)** Yin, Huang, & Li 1984:86. **(tx)** Yin, Huang, & Li 1984:86.

Page 300 ***subopacus*** Thompson. Add:

FIGURES: Lekander 1968:156 (larval characters); Pfeffer 1994a:158 (frons, antenna), 1994c:282 (vestiture, antenna).
DISTRIBUTION: EUROPE: England.
HOSTS: *Abies pectinata, Picea abies, P. excelsa, P. jezoensis, P. obovata, Pinus cembra, P. koraiensis, P. montana, P. mugo, P. pumila, P. strobus, P. sylvestris.*
REFERENCES: **(an)** Lekander 1968:35. **(ds)** Burakowski et al. 1992:49; Kaponen & Nuorteva 1973:26; Pfeffer 1994c:80; Winter 1991a; Yin, Huang, & Li 1984:84. **(hb)** Koch 1992:155. **(tx)** Burakowski et al. 1992:49; Lekander 1968; Pfeffer 1994a:159, 1994c:80; Yin, Huang, & Li 1984:84.

Page 301 ***sulcatus*** Schedl. Add:

DISTRIBUTION: AFRICA: Cameroon.

Page 301 ***szemaoensis*** Tsai & Yin. Add:

FIGURES: Yin, Huang, & Li 1984:89 (elytral apex).
REFERENCES: **(ds)** Yin, Huang, & Li 1984:89. **(tx)** Yang & Sun 1991:66; Yin, Huang, & Li 1984:89.

Page 301 ***tenuis*** Schedl. Add:

DISTRIBUTION: AFRICA: Guinea, Tanzania.

Page 301 ***tropicus*** Eggers. Add:

DISTRIBUTION: AFRICA: Equatorial Guinea, Nigeria.
HOSTS: *Bosqueia angolensis.*
REFERENCES: **(ds)** Medler 1980:291.

Page 301 ***verrucifrons*** Tsai & Yin. Add:

FIGURES: Yin, Huang, & Li 1984:91 (elytral declivity, ♀ frons).
DISTRIBUTION: ASIA: Xizang (Tibet) in China.
HOSTS: *Pinus griffithi.*
REFERENCES: **(ds)** Yin, Huang, & Li 1984:90. **(tx)** Yang & Sun 1991:66, Yin, Huang, & Li 1984:90.

Page 301 ***vexator*** (Browne). Add:

HOSTS: *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990c:84.

Page 302 ***zambianus*** Beaver. Add:

REFERENCES: **(hb)** Beaver & Löyttyniemi 1991.

Page 302 ***zhungdianensis*** Tsai & Yin. Add:

HOSTS: *Pinus densata.*
REFERENCES: **(ds)** Yin, Huang, & Li 1984:86. **(tx)** Yang & Sun 1991:66; Yin, Huang, & Li 1984:86.

Add species: ***formosanus*** Nobuchi 1967:16. Holotype ♂; Nagoya Port, on pine wood imported into Nagoya from Formosa; Nobuchi Collection, Ibaraki (?).

FIGURES: Nobuchi 1967:pl. 1 (adult).
DISTRIBUTION: ASIA: Taiwan.
HOSTS: *Pinus* sp.
Note: Omitted from 1992 catalog.
REFERENCES: **(tx)** Nobuchi 1967:16.

Genus **Carphoborus** Eichhoff

Page 302 **Carphoborus** Eichhoff. Add:
KEYS: Lekander 1968:165, 166 (to larvae of Scandinavian species); Pfeffer 1994c:80 (to Palearctic species); Yin, Huang, & Li 1984:92 (to Chinese species).
REFERENCES: (**an**) Lekander 1968:58. (**tx**) Lekander 1968:58; Pfeffer 1994c:80; Yin, Huang, & Li 1984:92.

Page 302 ***andersoni*** Swaine. Add:
REFERENCES: (**ds**) Garry et al. 1990a, 1990b, 1994; Schwert 1992:81.

Page 302 ***bifurcus*** Eichhoff. Add:
REFERENCES: (**tx**) Weber & McPherson 1991.

Page 303 ***bonnairei*** Brisout. Add:
FIGURES: Pfeffer 1994c:265,283 (elytral apex).
DISTRIBUTION: ASIA: Cyprus, Israel.
HOSTS: *Pinus halepensis brutia, P. nigra mauretanica.*
REFERENCES: (**ds**) Pfeffer 1994c:82. (**tx**) Pfeffer 1994c:82.

Page 303 *henscheli* Reitter (synonym of ***bonnairei*** Brisout). Add:
NOTES: Pfeffer 1994c:83 (treats this taxon as a valid species).
REFERENCES: (**ds**) Pfeffer 1994c:83. (**tx**) Pfeffer 1994c:83.

Page 304 ***carri*** Swaine. Add:
REFERENCES: (**ds**) Schwert 1992:81,84.

Page 304 ***cholodkovskyi*** Spessivtsev. Add:
FIGURES: Lekander 1968:166 (larval characters); Pfeffer 1994c: 265 (elytral apex), 310 (gallery).
HOSTS: *Picea obovata.*
REFERENCES: (**an**) Lekander 1968:60. (**ds**) Burakowski et al. 1992:50; Nilssen 1993; Pfeffer 1994c:84. (**tx**) Burakowski et al. 1992:50; Lekander 1968; Pfeffer 1994c:84.

Page 304 ***convexifrons*** Wood. Add:
REFERENCES: (**ds**) Bright 1972b:1496. (**tx**) de Ruette 1970:98.

Page 305 ***costatus*** Wichmann. Add:
HOSTS: *Pinus longifolia, P. wallichiana.*

Page 305 ***intermedius*** Wood. Add:
HOSTS: *Picea breweriana.*

Page 305 ***jurinskii*** Eggers. Add:
HOSTS: *Picea obovata.*
REFERENCES: (**ds**) Pfeffer 1994c:84. (**tx**) Pfeffer 1994c:84.

Page 305 ***marani*** Pfeffer. Add:
FIGURES: Pfeffer 1994c:265 (elytral apex).
REFERENCES: (**ds**) Pfeffer 1994c:83. (**tx**) Pfeffer 1994c:83.

Page 305 ***minimus*** (Fabricius). Add:
FIGURES: Pfeffer 1994c:265,283 (elytral apex).
HOSTS: *Pinus mugo, P. nigra, P. nigra laricio, P. nigra nigra, P. nigra pallasiana, P. pinaster, P. sylvestris.*

REFERENCES: (**ds**) Pfeffer 1994c:81. (**hb**) Koch 1992:155. (**tx**) Pfeffer 1994c:81.

Page 307 ***perrisi*** (Chapuis). Add:
FIGURES: Aksent'yev 1994:4 (larval features).
DISTRIBUTION: ASIA: Cyprus, Israel, Turkey.
HOSTS: *Cotinus coggygria, Pistacia atlantica, P. lentiscus, P. mutica, P. terebinthhus, P. vera, Rhus cotinus.*
REFERENCES: (**ds**) Balazuc 1984:309; Burakowski et al. 1992:50; Nilssen 1993; Pfeffer 1994c:84. (**tx**) Burakowski et al. 1992:50; Pfeffer 1994c:84.

Page 308 *kushkensis* Sokanovskii (synonym of ***perrisi*** (Chapuis)). Add:
REFERENCES: (**an**) Aksent'yev 1994:3.

Page 308 ***pini*** Eichhoff. Add:
FIGURES: Pfeffer 1994c:265,283 (elytral apex).
DISTRIBUTION: EUROPE: Sicily, Spain.
HOSTS: *Pinus brutia, P. nigra, P. pinaster, P. pinea.*
REFERENCES: (**ds**) Pfeffer 1994c:82,83. (**tx**) Pfeffer 1994c:82,83.

Page 309 ***rossicus*** Semenov. Add:
FIGURES: Lekander 1968:166 (larval characters); Pfeffer 1994c:265 (adult).
HOSTS: *Picea abies.*
REFERENCES: (**an**) Lekander 1968:60. (**ds**) Lundberg 1989; Pfeffer 1994c:84. (**tx**) Lekander 1968; Pfeffer 1994c:84.

Page 310 ***teplouchovi*** Spessivtsev. Add:
FIGURES: Lekander 1968:165 (larval characters); Pfeffer 1994c: 265 (elytral apex).
HOSTS: *Picea abies, P. ajanensis.*
REFERENCES: (**an**) Lekander 1968:59. (**ds**) Pfeffer 1994c:82; Yin, Huang, & Li 1984:92. (**hb**) Lindeman 1994. (**tx**) Lekander 1968; Pfeffer 1994c:82; Yin, Huang, & Li 1984:92.

Page 310 ***vandykei*** Bruck. Add:
REFERENCES: (**ds**) Parsons et al. 1991:58.

Page 310 ***zhobi*** (Stebbing). Add:
HOSTS: *Pinus excelsa, P. roxburghii.*

Genus **Bothinodroctonus** Schedl

Page 310 ***bicinctus*** Schedl. Add:
HOSTS: *Parishia* sp., *Seyara* sp.
REFERENCES: (**ds**) Ohno 1990c:84.

Genus **Chortastus** Schaufuss

Page 311 ***minimus*** Hagedorn. Add:
DISTRIBUTION: AFRICA: Cameroon.

Page 312 ***schenklingi*** Hagedorn. Add:
DISTRIBUTION: AFRICA: Congo, Equatorial Guinea, Nigeria.
REFERENCES: (**ds**) Medler 1980:289.

Subfamily Scolytinae Latreille

Page 313 **SCOLYTINAE.** Add:
KEYS: Lombardero 1994:207 (to tribes in northwest Spain).
REFERENCES: **(tx)** Lombardero 1994:207; Pfeffer 1994c:91.

TRIBE SCOLYTINI

Page 313 **Scolytini.** Add:
REFERENCES: **(tx)** Lombardero 1994:208.

Genus **Cnemonyx** Eichhoff

Page 313 **Cnemonyx** Eichhoff. Add:
KEYS: Wood, Stevens, & Lezama 1991b:280 (to Costa Rican species).
REFERENCES: **(tx)** Wood, Stevens, & Lezama 1991b:280.

Page 313 ***amazonicus*** (Eggers). Add:
DISTRIBUTION: SOUTH AMERICA: Peru.

Page 313 ***atratus*** (Blandford). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:280. **(tx)** Wood, Stevens, & Lezama 1991b:280.

Page 314 ***creber*** Schedl. Add:
REFERENCES: **(tx)** Marinoni et al. 1992:123.

Page 314 ***difformis*** (Schedl). Add:
REFERENCES: **(ds)** Schedl 1966f:81, 1973d:151, 1978c:291. **(tx)** Marinoni et al. 1992:124.

Page 314 ***equihuai*** Wood. Add:
REFERENCES: **(ds)** Equihua-Martinez & Atkinson 1986:626. **(ec)** Equihua-Martinez & Atkinson 1986:626. **(hb)** Equihua-Martinez & Atkinson 1986:626.

Page 314 *barbatus* Schedl (synonym of ***errans*** (Blandford)). Add:
REFERENCES: **(tx)** Marinoni et al. 1992:123.

Page 315 ***exiguus*** (Blandford). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:281. **(tx)** Wood, Stevens, & Lezama 1991b:281.

Page 315 ***ficus*** (Schwarz). Add:
HOSTS: *Hippomane mancinella*.
REFERENCES: **(ds)** Atkinson 1993b, 1993c; Atkinson & Peck 1994:319. **(hb)** Atkinson 1993b; Atkinson & Peck 1994:319.

Page 315 ***flavicornis*** (Chapuis). Add:
DISTRIBUTION: SOUTH AMERICA: Bolivia.

Page 315 ***galeritus*** Eichhoff. Add:
DISTRIBUTION: SOUTH AMERICA: Argentina.

Page 316 ***glabratus*** (Schedl). Add:
HOSTS: *Virola guatemalensis*.

Page 316 ***impressus*** (Wood). Add:
DISTRIBUTION: NORTH AMERICA: Costa Rica.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:281. **(tx)** Wood, Stevens, & Lezama 1991b:281.

Page 316 ***insignis*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:280. **(tx)** Wood, Stevens, & Lezama 1991b:280.

Page 316 ***maculicornis*** (Blandford). Add:
REFERENCES: **(tx)** Wood, Stevens, & Lezama 1991b:280.

Page 316 ***minor*** Schedl. Add:
REFERENCES: **(tx)** Marinoni et al. 1992:123.

Page 317 ***minusculus*** (Blandford). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:281. **(tx)** Wood, Stevens, & Lezama 1991b:281.

Page 317 ***niger*** (Eggers). Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.
REFERENCES: **(ds)** Schedl 1973d:151.

Page 317 ***opacus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Chiapas**), **Panama**.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:281. **(tx)** Wood, Stevens, & Lezama 1991b:281.

Page 317 ***panamensis*** (Blandford). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:280. **(tx)** Wood, Stevens, & Lezama 1991b:280.

Page 318 ***squamifer*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Campeche**).

Page 318 ***vagabundus*** (Wood). Add:
HOSTS: *Hippomane mancinella* (delete *Piscidia piscipula*).
REFERENCES: **(ds)** Atkinson 1993b,c; Atkinson & Peck 1994:319; Wood, Stevens, & Lezama 1991b:281. **(hb)** Atkinson 1993b; Atkinson & Peck 1994:319. **(tx)** Wood, Stevens, & Lezama 1991b:281.

Add species: ***priscus** Bright & Poinar 1994:180. Holotype (♀); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:181,182.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: **(tx)** Bright & Poinar 1994:180.

Genus **Camptocerus** Latreille

Page 318 **Camptocerus** Latreille. Add:
KEYS: Wood, Stevens, & Lezama 1991b:281 (to Costa Rican species).
REFERENCES: **(tx)** Wood, Stevens, & Lezama 1991b:281.

Page 318 ***aeneipennis*** (Fabricius). Add:
DISTRIBUTION: SOUTH AMERICA: Ecuador, Peru.

HOSTS: *Icica altissima, Protium decandrum, P. tennifolium.*
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:281. **(tx)** Wood, Stevens, & Lezama 1991b:281.

Page 318 ***aterrimus*** Eggers. Add:
DISTRIBUTION: SOUTH AMERICA: Guyana.
HOSTS: *Protium* sp.

Page 319 ***auricomis*** Blandford. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Hidalgo).
HOSTS: *Protium* sp.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:281. **(tx)** Wood, Stevens, & Lezama 1991b:281.

Page 319 ***infidelis*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:281. **(tx)** Wood, Stevens, & Lezama 1991b:281.

Page 319 ***inoblitus*** (Schedl). Add:
HOSTS: *Myrocarpus frondosus.*

Page 319 ***niger*** (Fabricius). Add:
HOSTS: *Hirtella* sp., *Licania kunthii.*
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:281. **(tx)** Wood, Stevens, & Lezama 1991b:281.

Page 319 ***opacicollis*** (Eggers). Add:
DISTRIBUTION: SOUTH AMERICA: Argentina.
HOSTS: *Hirtella* sp., *Protium* sp.

Page 320 ***orientalis*** Eggers. Add:
DISTRIBUTION: SOUTH AMERICA: Bolivia.

Page 320 ***quadridens*** Blackman. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:281. **(tx)** Wood, Stevens, & Lezama 1991b:281.

Page 320 ***suturalis*** (Fabricius). Add:
DISTRIBUTION: SOUTH AMERICA: French Guiana.

Genus **Scolytopsis** Blandford

Page 320 ***brasiliensis*** Eggers. Add:
HOSTS: *Eucalyptus denea, Prunus sellowii.*

Page 321 ***puncticollis*** Blandford. Add:
HOSTS: *Terminalia amazonica.*
REFERENCES: **(tx)** Wood, Stevens, & Lezama 1991a:131.

Genus **Scolytus** Geoffroy

Page 321 **Scolytus** Geoffroy. Add:
KEYS: Lekander 1968:25 (to larvae of Scandinavian species); Lombardero 1994:209 (to species in northwest Spain); Pfeffer 1994a:153 (to Central European species), 1994c:91 (to Palearctic species); Wood, Stevens, & Lezama 1991b:281 (to Costa Rican species).

REFERENCES: (**an**) Lekander 1968:23. (**ds**) Garry et al. 1990b. (**tx**) Lekander 1968:23, 1994:209; Lombardero 1994:209; May 1993:96; Pfeffer 1994a:153, 1994c:91; Wood, Stevens, & Lezama 1991b:281.

Page 322 ***abaensis*** Tsai & Yin. Add:

REFERENCES: (**tx**) Yang & Sun 1991:66.

Page 322 ***amygdali*** Guérin-Meneville. Add:

DISTRIBUTION: AFRICA: Tunisia. ASIA: Cypress, Jordan.

HOSTS: *Amelanchier vulgaris, Armeniaca vulgaris, Persica vulgaris, Prunus armeniaca, P. persica.*

REFERENCES: (**cn**) Cherif & Trigui 1990. (**ds**) Pfeffer 1994c:104. (**hb**) Kinaway, Tadors, & Abd-Allah 1991; Koch 1992:150. (**tx**) Pfeffer 1994c:104.

Page 324 ***azerbaidzhanicus*** Michalski. Add:

REFERENCES: (**ds**) Pfeffer 1994c:105. (**tx**) Pfeffer 1994c:105.

Page 325 ***belokanicus*** Stark. Add:

NOTES: Pfeffer 1994c:106 (treats this taxon as ***belokani*** Stark).

REFERENCES: (**ds**) Pfeffer 1994c:106. (**tx**) Pfeffer 1994c:106.

Page 325 *bituberculatus* Puzyr. Move to ***ratzeburgi*** Janson as a synonym. Add:

NOTES: Pfeffer 1994c:101 (treats this taxon as a abnormal male of ***ratzeburgi***).

REFERENCES: (**tx**) Pfeffer 1994c:101.

Page 325 ***carpini*** (Ratzeburg). Add:

FIGURES: Pfeffer 1994c:273 (habitus).

HOSTS: *Carpinus betulus, C. orientalis, Corylus avellana, Fagus orientalis, F. sylvatica, Ostrya carpinifolia, Quercus pedunculata, Q. petraea, Q. pubescens, Q. robur.*

REFERENCES: (**ds**) Burakowski et al. 1992:51; Michalski & Ratajczak 1994; Pfeffer 1994c:108. (ec) Michalski & Ratajczak 1994. (**hb**) Koch 1992:150. (**tx**) Burakowski et al. 1992:51; Pfeffer 1994c:108.

Page 327 ***chikisanii*** Niisima. Add:

REFERENCES: (**ds**) Krivolutskaya 1965a:225, 1973:130; Krivolutskaya & Kupyankskaya 1970; Li, Huang, & Li 1984:27. (**hb**) Krivolutskaya 1965a:225, 1973:130. (**tx**) Li, Huang, & Li 1984:27; Yin & Huang 1980:47.

Page 328 ***claviger*** Blandford. Add:

DISTRIBUTION: ASIA: China.

Page 328 ***costellatus*** Chapuis. Add:

REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:281. (**tx**) Wood, Stevens, & Lezama 1991b:281.

Page 328 ***cristatus*** Wood. Add:

REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:281. (**tx**) Wood, Stevens, & Lezama 1991b:281.

Page 328 ***dahuricus*** Chapuis. Add:

FIGURES: Yin, Huang, & Li 1984:31.

Page 329 ***dimidiatus*** Chapuis. Add:

DISTRIBUTION: NORTH AMERICA: El Salvador, Jamaica.

HOSTS: *Rhamnus capraefolia.*

REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:463; Wood, Stevens, & Lezama 1991b:282. (**hb**) Noguera-Martinez & Atkinson 1990:463. (**tx**) Wood, Stevens, & Lezama 1991b:282.

Page 329 ***ecksteini*** Butovitsch. Add:

FIGURES: Aksent'yev 1992(1993):121,122 (larval characters); Pfeffer 1994c:274 (abdomen).

HOSTS: *Ulmus minor, Zelkova* sp.

REFERENCES: (**an**) Aksent'yev 1992(1993):120. (**ds**) Aksent'yev 1992(1993):120; Pfeffer 1994c:94. (**hb**) Aksent'yev 1992(1993): 120. (**tx**) Pfeffer 1994c:94.

Page 329 ***eichhoffi*** Reitter. Add:

FIGURES: Aksent'yev 1992(1993):122,123 (larval characters); Pfeffer 1994c:274 (habitus).

HOSTS: *Ulmus carpinifolia, U. minor, Zelkova carpinifolia.*

REFERENCES: (**an**) Aksent'yev 1992(1993):121. (**ds**) Aksent'yev 1992(1993):121; Pfeffer 1994c:100,101. (**hb**) Aksent'yev 1992(1993):121. (**tx**) Pfeffer 1994c:100,101.

Page 329 ***ellipticus*** Murayama. Add:

HOSTS: *Carpinus* sp., *Prunus mume.*

Page 329 ***ensifer*** Eichhoff. Add:

FIGURES: Pfeffer 1994a:154 (abdomen), 1994c:273 (abdomen).

HOSTS: *Prunus avium, Ulmus campestris, U. effusa, U. elliptica, U. glabra, U. laevis, U. minor, U. montana.*

REFERENCES: (**ds**) Burakowski et al. 1992:52; Pfeffer 1994c:94. (**hb**) Koch 1992:151. (**tx**) Burakowski et al. 1992:52; Pfeffer 1994c:94.

Page 330 ***esuriens*** Blandford. Add:

DISTRIBUTION: ASIA: E. Russia (Kuril Islands).

HOSTS: *Betula* sp., *Pterocarya rhoifolia, Tilia* sp.

Page 330 ***fagi*** Walsh. Add:

DISTRIBUTION: NORTH AMERICA: Canada (Ontario).

HOSTS: *Celtis tenuifolia.*

REFERENCES: (**ds**) Bright, Skidmore, & Dunster 1994.

Page 331 ***frontalis*** Blandford. Add:

HOSTS: *Prunus* sp., *Quercus* sp., *Zelkova* sp.

Page 331 ***gretschkini*** Sokanovskii. Add:

FIGURES: Pfeffer 1994c:274 (frons).

HOSTS: *Amygdalus bucharica, A. communis, Cerasus avium, C. erythrocarpa, Juglans regia, Prunus cerasifera.*

REFERENCES: (**ds**) Pfeffer 1994c:102,105. (**tx**) Pfeffer 1994c: 102,105.

Page 331 ***intricatus*** (Ratzeburg). Add:

FIGURES: Aksent'yev 1992(1993):123 (larval characters); Joly 1977:9,10 (gallery); Lekander 1968:153 (larval characters);

Lombardero 1994:216, Plate 4 (adult features, aedeagus, gallery); Pfeffer 1994c:273 (frons, habitus), 263 (lateral habitus), 308 (gallery).
DISTRIBUTION: AFRICA: Algeria. ASIA: Iran.
HOSTS: *Aesculus* spp., *Alnus glutinosa, Betula celtiberica, B. verrucosa, Carpinus betula, Castanea sativa, C. vesca, Fagus orientalis, F. sylvatica, Ostrya carpinifolia, Parrotia* spp., *Populus alba, P. tremula, Quercus canariensis, Q. castaneifolia, Q. castaneifolia incana, Q. cerris, Q. coccifera, Q. frainetto, Q. ilex, Q. lusitanica, Q. pedunculata, Q. petraea, Q. pubescens, Q. pyrenaica, Q. robur, Q. sessiliflora, Salix* spp., *Sorbus* sp., *Ulmus* sp., *Zelkova* spp.
REFERENCES: **(an)** Lekander 1968:30. **(cn)** Gibbs 1984; Kolk 1992; Novak 1988; Pinon 1991; Zach 1991. **(ds)** Adam 1992:217; Balazy & Michalski 1962a:206; Burakowski et al. 1992:53; Fernandez Fernandez 1992:524; Flint 1992:71; Gogniat 1991:24; Heliövaara, Väisänen, & Immonen 1991; Lombardero 1994:211; Michalski & Rataczak 1994; Owen 1993:160; Pfeffer 1994c:103,107; Schott 1986:56; Titovsek 1983:391. **(ec)** Gibbs 1984; Guse-i-nov 1984; Hilt & Ammer 1994; Ivanchenko 1957; Kolk 1985b; Michalski & Rataczak 1994; Michalski, Kaczmarek, & Ratajczak 1992b:145; Novak 1988; Pinon 1990; Rossnev, Petkov, & Georgiev 1994; Schopf, Stramm, & Doganlar 1984. **(hb)** Balazy & Michalski 1962a:206; Koch 1992:150; Owen 1993. **(tx)** Burakowski et al. 1992:53; Lekander 1968; Lombardero 1994:211; Pfeffer 1994c:103,107.

Page 334 *lenkoranus* Eggers (synonym of ***intricatus*** (Ratzeburg)). Add:
REFERENCES: **(an)** Aksent'yev 1992(1993):124. **(ds)** Aksent'yev 1992(1993):124. **(hb)** Aksent'yev 1992(1993):124.

Page 334 ***jacobsoni*** (Spessivtsev). Add:
DISTRIBUTION: ASIA: E. Russia (Sakhalin Islands).

Page 335 ***japonicus*** Chapuis. Add:
DISTRIBUTION: ASIA: Mongolia, Taiwan.
HOSTS: *Lonicera ruprechtiaca, Zelkova serrata.*

Page 336 ***jaroschewskii*** Schevyrew. Add:
FIGURES: Aksent'yev 1994:2 (larval features); Pfeffer 1994c:274 (abdomen).
HOSTS: *Elaeagnus angustifolia, Tamarix* sp., *Ulmus laevis, U. minor.*
REFERENCES: **(an)** Aksent'yev 1994:1. **(ds)** Pfeffer 1994c:97. **(tx)** Pfeffer 1994c:97.

Page 336 ***kirschi*** Skalitzky. Add:
FIGURES: Lombardero 1994:220, Plate 4 (adult features, aedeagus, gallery); Pfeffer 1994a:154 (abdomen), 1994c:273 (abdomen).
DISTRIBUTION: AFRICA: Algeria. EUROPE: Hungary, Portugal.
HOSTS: *Armeniaca vulgaris, Persica vulgaris, Prunus americana, P. armeniaca, P. avium, P. domestica, Ulmus campestris, U. carpinifolia, U. effusa, U. glabra, U. laevis, U. minor.*
NOTES: Pfeffer 1994c:96 (recognizes two subspecies, ***kirschi*** and ***fasciatus***).
REFERENCES: **(cn)** Lindeman 1988. **(ds)** Burakowski et al. 1992:54; Fernandez Fernandez 1992:524; Lombardero 1994:219;

Pfeffer 1994c:96; Zanta & Battisti 1989. **(ec)** Webber 1990. **(hb)** Koch 1992:151; Zanta & Battisti 1989. **(tx)** Burakowski et al. 1992:54; Lombardero 1994:219; Pfeffer 1994c:96.

Page 337 *fasciatus* Reitter (synonym of ***kirschi*** Skalitzky). Add:
NOTES: Pfeffer 1994c:96 (treats this taxon as subspecies of ***kirschi***).
REFERENCES: **(ds)** Pfeffer 1994c:96. **(tx)** Pfeffer 1994c:96.

Page 337 ***koenigi*** Schevyrew. Add:
FIGURES: Pfeffer 1994c:309 (gallery).
HOSTS: *Acer campestre, A. hyrcanum, A. obtusatum, A. platanoides, A. rubrum, A. trautvetteri, A. velutinum.*
REFERENCES: **(ds)** Elias 1994:94, 230; Pascovici 1962; Pfeffer 1994c:105. **(hb)** Koch 1992:150. **(tx)** Iablokoff-Khnzorian 1961:85, Pfeffer 1994c:105.

Page 338. ***kozikowskii*** Michalski. Add:
FIGURES: Pfeffer 1994c:274 (abdomen).
REFERENCES: **(ds)** Pfeffer 1994c:92. **(tx)** Pfeffer 1994c:92.

Page 339 ***laevis*** Chapuis. Add:
FIGURES: Lekander 1968:150 (larval characters); Pfeffer 1994a:154 (abdomen), 1994c:273 (abdomen), 309 (gallery).
DISTRIBUTION: EUROPE: England, Scotland, Switzerland.
HOSTS: *Alnus glutinosa, Pyrus* sp., *Ulmus campestris, U. effusa, U. elliptica, U. glabra, U. laevis, U. minor, U. montana, U. scabra.*
REFERENCES: **(an)** Lekander 1968:26. **(ds)** Burakowski et al. 1992:55; Gogniat 1991:24; Heliövaara, Väisänen, & Immonen 1991; Pfeffer 1994c:98,107; Titovsek 1983:391; Winter 1991a; Zanta & Battisti 1989. **(ec)** Hansen & Somme 1994. **(hb)** Koch 1992:151; Zanta & Battisti 1989. **(tx)** Burakowski et al. 1992:55; Lekander 1968; Pfeffer 1994c:98,107.

Page 340 ***laricis*** Blackman. Add:
REFERENCES: **(ds)** Winter 1991a.

Page 340 ***major*** Stebbing. Add:
DISTRIBUTION: ASIA: Pakistan.

Page 341 ***mali*** (Bechstein). Add:
FIGURES: Lekander 1968:151 (larval characters); Lombardero 1994:225, Plate 4 (adult features, aedeagus, gallery); Pfeffer 1994c:273 (abdomen).
DISTRIBUTION: ASIA: Iran. EUROPE: United Kingdom, Wales. NORTH AMERICA: United States (Maine).
HOSTS: *Armeniaca vulgaris, Carpinus betulus, Castanea sativa, C. vesca, Cerasus avium, C. vulgaris, Corylus* sp., *Cotoneaster multiflora, Crataegus melanocarpa, C. oxyacantha, Cydonia oblonga, C. vulgaris, Laurocerasus officinalis, Malus pumila, M. domestica, M. sylvestris, Padellus mahaleb, Padus avium, Persica vulgaris, Populus* spp., *Prunus armeniaca, P. avium, P. cerasus, P. domestica, P. insitiata, P. laurocerasus, P. mahaleb, P. padus, P. persica, P. spinosa, Pyracantha coccinea, Pyrus communis, P. malus, Sorbus aria, S. aucuparia, S. intermedia, S. torminalis, Ulmus campestris, U. effusa.*

REFERENCES: (**an**) Lekander 1968:27. (**bv**) Whitehead 1990. (**cn**) Anonymous 1992c; Campbell, Sarazin, & Lyons 1989:371; Hyman 1992:402. (**ds**) Bain 1977b:16; Balazuc 1984:308; Balazy & Michalski 1962a:206; Burakowski et al. 1992:55; Campbell, Sarazin, & Lyons 1989:371; Dearborn & Donahue 1993:78; Fernandez Fernandez 1992:524; Flint 1992:71; Hansen et al. 1990:28; Hyman 1992:402; József 1992; Laplante et al. 1991:115; Larochelle 1979:50; Lombardero 1994:223; Michalski & Ratajczak 1994; Pfeffer 1994c:106; Schott 1986:56; Titovsek 1983:391. (**ec**) Hyman 1992:402; Michalski & Ratajczak 1994. (**hb**) Balazy & Michalski 1962a:206; Campbell, Sarazin, & Lyons 1989:371; Koch 1992:150. (**tx**) Burakowski et al. 1992:55; Lekander 1968; Lombardero 1994:223; Pfeffer 1994c:106.

Page 342 *pruni* Ratzeburg (synonym of ***mali*** (Bechstein)). Add:
REFERENCES: (**cn**) Lanier 1993. (**ds**) Lanier 1993.

Page 345 ***morawitzi*** Semenov. Add:
HOSTS: *Larix kaempferi, L. maritima.*
REFERENCES: (**ds**) Pfeffer 1994c:103. (**tx**) Pfeffer 1994c:103.

Page 345 ***multistriatus*** (Marsham). Add:

FIGURES: Lombardero 1994:230, Plate 4 (adult features, aedeagus, gallery); May 1993:207 (larval characters); Papp 1984:289 (gallery); Pfeffer 1994a:154 (abdomen), 1994c:273 (abdomen), 309 (gallery); Zimmerman 1992:629 (adult).

DISTRIBUTION: AFRICA: Tunisia. EUROPE: Albania. NORTH AMERICA: Canada (**Alberta**, Saskatchewan). OCEANIA: New Zealand (introduced). SOUTH AMERICA: Chile (introduced).

HOSTS: *Alnus* spp., *Carpinus* spp., *Carya cordiformis, C. ovata, Fagus orientalis, Populus tremula, Populus* sp., *Prunus avium, P. domestica, Prunus* sp., *Pyrus communis, Quercus* sp., *Rhamnus alaternus, Ulmus campestris, U. carpinifolia, U. effusa, U. glabra, U. hollandica, U. laevis, U. minor, U. montana, Zelkova serrata.*

NOTES: Pfeffer 1994c:93 (recognizes two subspecies, *multistriatus* and *orientalis*).

REFERENCES: (**an**) May 1993:96. (**bv**) Dickens et al. 1990; Fairhurst & Harding 1992; Fernandez Fernandez 1992:524; Lombardero 1992b; Sacchetti, Tiberi, & Mittempergher 1990. (**cn**) Anonymous 1991a; Borden 1992c; Campbell, Sarazin, & Lyons 1989:372; Haanstad & Norris 1992; Jassim, Foster, & Fairhurst 1990a, 1990b; Jenkins 1994; Khudaibergenov, & Khodzhaev 1991; Kinh & Scott 1975b; Magasi et al. 1993; Mittempergher, Fagnani, & Ferrini 1993; O'Keefe 1968; Pajares & Lanier 1989; Riedl 1973; Smalley & Guries 1993; Wallner & Leeling 1968; Westwood 1991; Yau 1994; Yonker 1990; Zach 1991. (**ds**) Adam 1992:217; Anonymous 1991a; Bain 1977b:16; Beéche & Muñoz 1994; Burakowski et al. 1992:57; Campbell, Sarazin, & Lyons 1989:372; Dearborn & Donahue 1993:78; Lombardero 1994:226; O'Conner, Winter, & Good 1991:404,407; Papp 1984:288; Pfeffer 1994c:93; Schott 1986:56; Titovsek 1983:391; Winter 1991a; Zanta & Battisti 1989. (**ec**) Afsharpour & Adeli 1973; Anonymous 1944c; Basset et al. 1992; Dearborn & Donahue 1993:78; Grissell 1983; Kondo 1971; Mittempergher, Fagnani, & Ferrini 1993; Parbery & Rubma 1991;

Richards 1988; Riedl 1973; Splawa-Neyman & Owczarzak 1987; Sticklen et al. 1991; Uchastnova 1987; Webber 1990. (**hb**) Beéche & Muñoz 1994; Campbell, Sarazin, & Lyons 1989:372; Koch 1992:151; May 1993:96; Papp 1984:288; Weber & McPherson 1991; Winter 1991a; Zanta & Battisti 1989. (**ms**) Magasi et al. 1993; Skirkevicius 1993:61. (**tx**) Beéche & Muñoz 1994; Burakowski et al. 1992:57; Lombardero 1994:226; May 1993:96; Naumann 1993:161; Pfeffer 1994c:93.

Page 353 *orientalis* Eggers (synonym of ***multistriatus*** (Marsham)). Add:
NOTES: Pfeffer 1994c:94 (treats this taxon as a subspecies of ***multistriatus***).
REFERENCES: (**ds**) Pfeffer 1994c:94. (**tx**) Pfeffer 1994c:94.

Page 354 ***muticus*** Say. Add:
DISTRIBUTION: NORTH AMERICA: Canada (Ontario).
HOSTS: *Celtis tenuifolia, Gleditzia triacanthos.*
REFERENCES: (**ds**) Bright, Skidmore, & Dunster 1994.

Page 354 ***nevermanni*** Schedl. Add:
HOSTS: *Scaphium* sp.
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:282. (**tx**) Wood, Stevens, & Lezama 1991b:282.

Page 354 ***nitidus*** Schedl. Add:
DISTRIBUTION: ASIA: Pakistan.
HOSTS: *Juglans regia, Malus pumila, Pinus roxburghii.*

Page 354 ***nodatus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:281. (**tx**) Wood, Stevens, & Lezama 1991b:281.

Page 355 ***novateutonicus*** Schedl. Add:
REFERENCES: (**tx**) Marinoni et al. 1992:125.

Page 355 ***numidicus*** Brisout. Add:
FIGURES: Pfeffer 1994c:274 (abdomen).
REFERENCES: (**ds**) Pfeffer 1994c:97. (**tx**) Pfeffer 1994c:97.

Page 355 ***opacus*** Blackman. Add:
DISTRIBUTION: NORTH AMERICA: Canada (Alberta).
REFERENCES: (**ds**) Bright & Skidmore 1991.

Page 355 ***oregoni*** Blackman. Add:
REFERENCES: (**ds**) Parsons et al. 1991:59.

Page 356 ***parviclaviger*** Yin & Huang. Add:
REFERENCES: (**tx**) Yang & Sun 1991:66.

Page 356 ***piceae*** (Swaine). Add:
REFERENCES: (**ds**) Dearborn & Donahue 1993:78; Laplante et al. 1991:115; Larochelle 1979:50; Schwert 1992:81,84.

Page 356 ***pilosus*** Yin & Huang. Add:
REFERENCES: (**tx**) Yang & Sun 1991:66.

Page 357 ***pomi*** Yin & Huang. Add:
REFERENCES: (**tx**) Yang & Sun 1991:66.

Page 357 ***propinquus*** Blandford. Add:
REFERENCES: (**tx**) Wood, Stevens, & Lezama 1991b:282.

Page 357 ***proximus*** Chapuis. Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.

Page 358 ***pygmaeus*** (Fabricius). Add:
FIGURES: Lekander 1968:152 (larval characters); Pfeffer 1994a:154 (abdomen), 1994c:273 (abdomen).
DISTRIBUTION: EUROPE: Finland, Slovenia.
HOSTS: *Carpinus betulus, Fagus silvatica, Prunus armeniaca, Ulmus campestris, U. effusa, U. glabra, U.laevis, U. minor, U. montana.*
REFERENCES: (**an**) Lekander 1968:29. (**ds**) Adam 1992:217; Burakowski et al. 1992:58; Pfeffer 1994c:98,107; Schott 1986:56; Titovsek 1983:391; Zanta & Battisti 1989. (**ec**) Favaro & Battisti 1993; Uchastnova 1987. (**hb**) Koch 1992:151; Zanta & Battisti 1989. (**ms**) Skirkevicius 1993:61. (**tx**) Burakowski et al. 1992:58; Lekander 1968; Pfeffer 1994c:98,107.

Page 359 ***quadrispinosus*** Say. Add:
DISTRIBUTION: NORTH AMERICA: United States (**Minnesota**).
HOSTS: *Carya cordiformis, C. ovata.*
REFERENCES: (**cn**) Dale et al. 1990; Loeb 1992; Smalley 1994. (**ds**) Laplante et al. 1991:115; Larochelle 1979:50; Papp 1984:287. (**ec**) Smalley 1994. (**hb**) Papp 1984:287.

Page 361 ***querci*** Yin & Huang. Add:
REFERENCES: (**tx**) Yang & Sun 1991:66.

Page 361 ***ratzeburgi*** Jansson. Add *bituberculatus* Puzyr as a synonym. Add:
FIGURES: Lekander 1968:152 (larval characters); Lombardero 1994:234, Plate 4 (adult features, aedeagus, gallery); Pfeffer 1994a:154 (abdomen), 1994c:273 (abdomen, frons), 308 (gallery).
DISTRIBUTION: ASIA: Iran. EUROPE: Scotland.
HOSTS: *Amygdalus communis, Armeniaca vulgaris, Betula alba, B. celtiberica, B. costata, B. dahurica, B. ermanii, B. pendula, B. platyphylla, B. pubescens, B. raddeana, B. verrucosa, Cerasus vulgaris, Prunus* sp., *Ulmus lacinata.*
REFERENCES: (**an**) Lekander 1968:28. (**cn**) Hyman 1992:402; Saarenmaa 1990; Trofimov & Lipatkin 1989. (**ds**) Balazy & Michalski 1962a:206; Burakowski et al. 1992:60; Hansen et al. 1991b:125, 1992:83; Hyman 1992:402; Lombardero 1994:233; Lombardero & Novoa 1994; Michalski & Ratajczak 1994; Pfeffer 1994c:98,105; Siitonen 1990. (**ec**) Grissell 1983; Hyman 1992:402; Michalski & Ratajczak 1994. (**hb**) Balazy & Michalski 1962a:206; Koch 1992:151; Löyttyniemi 1983. (**tx**) Burakowski et al. 1992:60; Lekander 1968; Lombardero 1994:233; Pfeffer 1994c:98,105.

Page 364 ***rugulosus*** (Müller). Add:
FIGURES: Lekander 1968:153 (larval characters); Lombardero 1994:239, Plate 5 (adult features, aedeagus, gallery); Pfeffer 1994a:154 (abdomen).

DISTRIBUTION: AFRICA: Egypt. ASIA: Saudi Arabia. ATLANTIC ISLANDS: Azores. EUROPE: Albania. NORTH AMERICA: Greenland. SOUTH AMERICA: Brazil, Chile.

HOSTS: *Acer platanoides, Amelanchier ovalis, A. vulgaris, Amygdalus communis, Armeniaca vulgaris, Castanea sativa, Cerasus avium, C. vulgaris, Corylus avellana, Cotoneaster multiflora, C. pyracantha, Crataegus melanocarpa, C. orientalis, C. oxyacantha, Cydonia vulgaris, Frangula* sp., *Laurocerasus officinalis, Malus domestica, M. pumila, M. sylvestris, Mespilus germanica, Padellus mahaleb, Padus avium, Persica vulgaris, P.* sp., *Prunus amygdalis, P. angustifolia, P. armeniaca, P. avium, P. bucharica, P. cerasus, P. domestica, P. insitiata, P. laurocerasus, P. mahaleb, P. padus, P. persica, P. prostrate, P. serotina, P. spinosa, Pyracantha* sp., *Pyrus communis, P. malus, Rhamnus cathartica, R. frangula, Rosa* spp., *Sorbus aria, S. aucuparia, S. torminalis, Taxus baccata, Tilia tomentosa.*

REFERENCES: (**an**) Lekander 1968:31. (**cn**) Anonymous 1992c; Campbell, Sarazin, & Lyons 1989:373; Kadyrov 1990; Lanier 1993; Zach 1991. (**ds**) Balazy & Michalski 1962a:206; Barriga et al. 1993:73,85; Borges 1990:116; Burakowski et al. 1992:61; Campbell, Sarazin, & Lyons 1989:373; Dearborn & Donahue 1993:78; Fernandez Fernandez 1992:524; Flint 1992:71; József 1992; Lanier 1993; Laplante et al. 1991:115; Larochelle 1979:50; Lombardero 1994:238; Michalski & Ratajczak 1994; Papp 1984:286; Pfeffer 1994c:104; Schott 1986:56; Titovsek 1983:392. (**ec**) Grissell 1983; Halstead 1990; Michalski & Ratajczak 1994. (**hb**) Balazy & Michalski 1962a:206; Campbell, Sarazin, & Lyons 1989:373; Koch 1992:149; Papp 1984:286; Weber & McPherson 1991. (**tx**) Burakowski et al. 1992:61; Lekander 1968; Lombardero 1994:238; Pfeffer 1994c:104.

Page 370 ***schevyrewi*** Semenov. Add:

FIGURES: Pfeffer 1994c:274 (abdomen); Xiao 1992:633 (adult, gallery).

DISTRIBUTION: ASIA: China.

HOSTS: *Armenica vulgaris, Caragana* spp., *Elaeagnus angustifolia, Persica vulgaris, Ulmus laevis, U. minor, U. pumila.*

REFERENCES: (**ds**) Pfeffer 1994c:96; Xiao 1992:633. (**ec**) Shi & Chen 1990. (**hb**) Shi & Chen 1990. (**tx**) Pfeffer 1994c:96; Xiao 1992:633.

Page 371 ***scolytus*** (Fabricius). Add:

FIGURES: Lekander 1968:151 (larval characters); Lombardero 1994:244, Plate 5 (adult features, aedeagus, gallery); Pfeffer 1994a:154 (abdomen), 1994c:273 (abdomen), 309 (gallery).

DISTRIBUTION: EUROPE: Ireland.

HOSTS: *Amygdalus communis, Corylus avellana, Fraxinus* spp., *Juglans* spp., *Prunus americana, P. amygdalis, P. armeniaca, Ulmus americana, U. campestris, U. carpinifolia, U. effusa, U. glabra, U. hollandica, U. laevis, U. minor, U. montana, Zelkova carpinifolia.*

REFERENCES: (**bv**) Fairhurst & Harding 1992. (**cn**) Gibbs 1973; Jassim, Foster, & Fairhurst 1990a, 1990b; King & Scott 1975b; Zach 1991; (**ds**) Adam 1992:217; Bain 1977b:16; Balazy & Michalski

1962a:206; Burakowski et al. 1992:62; Elias 1994:71, 111, 230; Fernandez Fernandez 1992:524; Hansen et al. 1991b:125, 1994:88; Lombardero 1994:243; Morris 1993:295; O'Conner, Winter, & Good 1991:404,407; Pfeffer 1994c:99,101; Schott 1986:56; Titovsek 1983:390; Zanta & Battisti 1989. **(ec)** Afsharpour & Adeli 1973; Richards 1988; Sticklen et al. 1991; Uchastnova 1987; Webber 1990. **(hb)** Balazy & Michalski 1962a:206; Koch 1992:151; Zanta & Battisti 1989. **(ms)** Skirkevicius 1993:61. **(tx)** Burakowski et al. 1992:62; Lombardero 1994:243; Pfeffer 1994a:154, 1994c:99,101.

Page 376 *triarmatus* Eggers (synonym of ***scolytus*** (Fabricius)). Add:
NOTES: Pfeffer 1994c:100 (treats this taxon as a valid species).
REFERENCES: **(an)** Lekander 1968:27. **(bv)** Schlyter 1992. **(ds)** Pfeffer 1994c:100,101; Zanta & Battisti 1989. **(hb)** Schlyter 1992; Zanta & Battisti 1989. **(tx)** Lekander 1968; Pfeffer 1994a:154, 1994c:100,101.

Page 376 ***shanhaiensis*** Yin & Huang. Add:
REFERENCES: **(tx)** Yang & Sun 1991:66.

Page 376 ***sinopiceus*** Tsai. Add:
FIGURES: Yin, Huang, & Li 1984:35.
REFERENCES: Yang & Sun 1991:66.

Page 377 ***squamosus*** Yin & Huang. Add:
REFERENCES: **(tx)** Yang & Sun 1991:66.

Page 377 ***submarginatus*** Schedl. Add:
HOSTS: *Dalbergia nigra.*

Page 377 ***subscaber*** LeConte. Add:
REFERENCES: **(ec)** Dajoz 1993.

Page 377 ***sulcifrons*** Rey. Add:
FIGURES: Pfeffer 1994c:273 (elytral apex).
DISTRIBUTION: EUROPE: Poland.
HOSTS: *Ulmus laevis, U. minor.*
REFERENCES: **(ds)** Pfeffer 1994c:100,101; Zanta & Battisti 1989. **(hb)** Zanta & Battisti 1989. **(tx)** Pfeffer 1994a:154, 1994c:100,101.

Page 378 ***tadzhikistanicus*** Stark. Add:
FIGURES: Aksent'yev 1994:2 (larval features); Pfeffer 1994c:275 (habitus).
HOSTS: *Malus sieversii.*
REFERENCES: **(an)** Aksent'yev 1994:2. **(ds)** Pfeffer 1994c:102,106. **(tx)** Pfeffer 1994c:102,106.

Page 378 ***torulus*** Wood. Add:
HOSTS: *Lonchocarpus* sp.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:282. **(tx)** Wood, Stevens, & Lezama 1991b:282.

Page 378 ***tsugae*** (Swaine). Add:
REFERENCES: **(ds)** Parsons et al. 1991:59.

Page 379 ***unispinosus*** LeConte. Add:

REFERENCES: (**cn**) Hessburg, Mitchell, & Filip 1994:19. (**ds**) Parsons et al. 1991:59; Winter 1991a. (**ec**) Bickel 1985; Grissell 1983.

Page 380 ***varshalovitchi*** Michalski. Add:

REFERENCES: (**ds**) Pfeffer 1994c:95. (**tx**) Pfeffer 1994c:95.

Page 380 ***ventralis*** LeConte. Add:

HOSTS: *Abies lasiocarpa, Picea engelmanni, Pseudotsugae menziesii, Tsuga mertensiana.*

REFERENCES: (**cn**) Ferrell, Otrosina, & DeMars 1993,1994; Filip 1994; Gara, Oliver, & Kenady 1982; Goheen & Hanses 1993; Hessburg, Mitchell, & Filip 1994:6,9,11,19,27,42; Williams, Azuma, & Ferrell 1992. (**ds**) Gara, Oliver, & Kenady 1982; Papp 1984:287; Parsons et al. 1991:59. (**ec**) Ferrell, Otrosina, & DeMars 1993, 1994; Filip 1994; Goheen & Hansen 1993; Grissell 1983; Otrosina & Ferrell 1992:153; Owen & Wilcox 1982. (**hb**) Papp 1984:287.

Page 382 ***zaitzevi*** Butovitsch. Add:

FIGURES: Pfeffer 1994c:274 (abdomen).

HOSTS: *Ulmus minor.*

REFERENCES: (**ds**) Pfeffer 1994c:95. (**tx**) Pfeffer 1994c:95.

Add species: ***poinari*** Bright, in Bright & Poinar 1994:181. Holotype (♂); Dominican Republic amber; GOPC, Corvallis.

FIGURES: Bright & Poinar 1994:182.

DISTRIBUTION: NORTH AMERICA: Dominican Republic.

REFERENCES: (**tx**) Bright & Poinar 1994:181.

TRIBE CTENOPHORINI

Genus **Microborus** Blandford

Page 383 **Microborus** Blandford. Add:

KEYS: Wood, Stevens, & Lezama 1991b:282 (to Costa Rican species).

REFERENCES: (**tx**) Wood, Stevens, & Lezama 1991b:282.

Page 383 ***boops*** Blandford. Add:

DISTRIBUTION: SOUTH AMERICA: Tobago. AFRICA: Côte d'Ivoire, Madagascar, Uganda, Zaire.

HOSTS: *Albizzia gummifera, Khaya anthotheca.*

REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:282. (**tx**) Wood, Stevens, & Lezama 1991b:282.

Page 384 ***limatus*** Wood. Add:

REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:282. (**tx**) Wood, Stevens, & Lezama 1991b:282.

Genus **Pycnarthrum** Eichhoff

Page 384 **Pycnarthrum** Eichhoff. Add:

KEYS: Wood, Stevens, & Lezama 1991b:282 (to Costa Rican species).

REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:282.

Page 384 ***brosimi*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:282. **(tx)** Wood, Stevens, & Lezama 1991b:282.

Page 384 ***hispidum*** (Ferrari). Add:
DISTRIBUTION: NORTH AMERICA: **Bahamas**. SOUTH AMERICA: Brazil, Tobago.
REFERENCES: **(ds)** Atkinson & Peck 1994:319; Wood, Stevens, & Lezama 1991b:282. **(hb)** Atkinson & Peck 1994:319. **(tx)** Wood, Stevens, & Lezama 1991b:282.

Page 385 ***lucidum*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:282. **(tx)** Wood, Stevens, & Lezama 1991b:282.

Page 385 ***pallidum*** (Chapuis). Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.

Page 385 ***perditum*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Costa Rica.
HOSTS: *Ficus* sp.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:282. **(tx)** Wood, Stevens, & Lezama 1991b:282.

Page 385 ***reticulatum*** Schedl. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:282. **(tx)** Wood, Stevens, & Lezama 1991b:282.

Add species: ****senectum*** Bright & Poinar 1994:183. Holotype (♂); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:184.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: **(tx)** Bright & Poinar 1994:183.

Genus **Gymnochilus** Eichhoff

Page 386 **Gymnochilus** Eichhoff. Add:
KEYS: Wood, Stevens, & Lezama 1991b:283 (to Costa Rican species).
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:283.

Page 386 ***consocius*** (Blandford). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:283. **(tx)** Wood, Stevens, & Lezama 1991b:283.

Page 387 ***minor*** (Blandford). Add:
DISTRIBUTION: SOUTH AMERICA: Venezuela.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:283. **(tx)** Wood, Stevens, & Lezama 1991b:283.

Page 387 ***reitteri*** Eichhoff. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:283. **(tx)** Wood, Stevens, & Lezama 1991b:283.

Genus **Scolytodes** Ferrari

Page 387 **Scolytodes** Ferrari. Add:
KEYS: Wood, Stevens, & Lezama 1991b:283 (to Costa Rican species).
REFERENCES: (**tx**) Wood, Stevens, & Lezama 1991b:283.

Page 388 ***acares*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:286. (**tx**) Wood, Stevens, & Lezama 1991b:286.

Page 388 ***alni*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:287. (**hb**) Arguedas Gamboa & Scorza Reggio 1991. (**tx**) Wood, Stevens, & Lezama 1991b:287.

Page 388 ***atratus*** (Blandford). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Hidalgo**), **Panama**.
HOSTS: *Cecropia obtusifolia*.

Page 388 *atratus panamensis* (Wood) (subspecies of ***atratus*** (Blandford)). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:283. (**tx**) Wood, Stevens, & Lezama 1991b:283.

Page 389 ***blandfordi*** (Schedl). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:283. (**tx**) Wood, Stevens, & Lezama 1991b:283.

Page 389 ***brasiliensis*** (Eggers). Add:
REFERENCES: (**tx**) Anderson & Anderson 1976:7.

Page 390 ***cecropiavorus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:283. (**tx**) Wood, Stevens, & Lezama 1991b:283.

Page 390 ***cecropicolens*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:283. (**tx**) Wood, Stevens, & Lezama 1991b:283.

Page 390 ***cecropii*** (Schedl). Add:
HOSTS: *Cecropia mexicana*.
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:283. (**tx**) Wood, Stevens, & Lezama 1991b:283.

Page 390 ***cedrelae*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:286. (**tx**) Wood, Stevens, & Lezama 1991b:286.

Page 390 ***chapuisi*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:283. (**tx**) Wood, Stevens, & Lezama 1991b:283.

Page 390 ***clusiae*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:285. (**tx**) Wood, Stevens, & Lezama 1991b:285.

Page 391 ***crassus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:285. **(tx)** Wood, Stevens, & Lezama 1991b:285.

Page 391 ***elongatissismus*** Wood. Add:

DISTRIBUTION: NORTH AMERICA: Panama. SOUTH AMERICA: Brazil.

Page 392 ***erineophilus*** Wood. Add:

HOSTS: *Rheedia edulis*.

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:287. **(tx)** Wood, Stevens, & Lezama 1991b:287.

Page 392 ***exiguus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:287. **(tx)** Wood, Stevens, & Lezama 1991b:287.

Page 392 ***glaberescens*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:283. **(tx)** Wood, Stevens, & Lezama 1991b:283.

Page 392 ***glabratus*** (Schedl). Add:

REFERENCES: **(tx)** Marinoni et al. 1992:123.

Page 392 ***glabrellus*** (Schedl). Add:

REFERENCES: **(tx)** Marinoni et al. 1992:123.

Page 393 ***guyanaensis*** (Schedl). Add:

HOSTS: *Swietenia macrophylla*.

Page 393 ***hirsutus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:285. **(tx)** Wood, Stevens, & Lezama 1991b:285.

Page 393 ***immanis*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:287. **(tx)** Wood, Stevens, & Lezama 1991b:287.

Page 393 ***impressus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:287. **(tx)** Wood, Stevens, & Lezama 1991b:287.

Page 393 ***irazuensis*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:286. **(tx)** Wood, Stevens, & Lezama 1991b:286.

Page 394 ***laevigatulus*** Wood. Add:

DISTRIBUTION: SOUTH AMERICA: Brazil.

Page 394 ***marginatus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:287. **(tx)** Wood, Stevens, & Lezama 1991b:287.

Page 394 ***maurus*** (Blandford). Add:

DISTRIBUTION: NORTH AMERICA: Mexico (**Hidalgo**).

HOSTS: *Cecropia obtusifolia*.

REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:463; Wood, Stevens, & Lezama 1991b:283. **(hb)** Noguera-Martinez & Atkinson 1990:463. **(tx)** Wood, Stevens, & Lezama 1991b:283.

Page 395 ***medius*** (Eggers). Add:
DISTRIBUTION: SOUTH AMERICA: Surinam.

Page 395 ***minutissimus*** Schedl. Add:
HOSTS: *Giton hamatum*.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:283. **(tx)** Wood, Stevens, & Lezama 1991b:283.

Page 395 ***multistriatus*** (Wood). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Hidalgo**).
HOSTS: *Ficus insipidia*.

Page 395 ***nanellus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:287. **(tx)** Wood, Stevens, & Lezama 1991b:287.

Page 396 ***notatus*** (Eggers). Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.

Page 396 ***obesus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:286. **(tx)** Wood, Stevens, & Lezama 1991b:286.

Page 396 ***ochromae*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:286. **(tx)** Wood, Stevens, & Lezama 1991b:286.

Page 397 ***parvulus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Hidalgo, Oaxaca**).
HOSTS: *Cecropia obtusifolia*.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:286. **(tx)** Wood, Stevens, & Lezama 1991b:286.

Page 397 ***pelicipennis*** (Schedl). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:287. **(tx)** Wood, Stevens, & Lezama 1991b:287.

Page 397 ***perditus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:284. **(tx)** Wood, Stevens, & Lezama 1991b:284.

Page 397 ***phoebeae*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:284. **(tx)** Wood, Stevens, & Lezama 1991b:284.

Page 397 ***piceus*** (Blandford). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:286. **(tx)** Wood, Stevens, & Lezama 1991b:286.

Page 397 ***pilifer*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Hidalgo**).
HOSTS: Although the host is unknown, this species was collected with *S. multistriatus*, which is known from *Ficus* sp.

Page 397 ***plumeriae*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:284. **(tx)** Wood, Stevens, & Lezama 1991b:284.

Page 398 ***proximus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:287. **(tx)** Wood, Stevens, & Lezama 1991b:287.

Page 398 ***pseudopiceus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:284. **(tx)** Wood, Stevens, & Lezama 1991b:284.

Page 398 ***pubescens*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:287. **(tx)** Wood, Stevens, & Lezama 1991b:287.

Page 398 ***pumilus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:287. **(tx)** Wood, Stevens, & Lezama 1991b:287.

Page 398 ***punctiferus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:285. **(tx)** Wood, Stevens, & Lezama 1991b:285.

Page 398 ***radiatus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:285. **(tx)** Wood, Stevens, & Lezama 1991b:285.

Page 398 ***rugicollis*** (Schedl). Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:287. **(tx)** Wood, Stevens, & Lezama 1991b:287.

Page 399 ***schwarzi*** (Hopkins). Add:

HOSTS: *Ficus insipida.*

REFERENCES: **(ds)** Atkinson & Peck 1994:320. **(hb)** Atkinson & Peck 1994:320.

Page 399 ***striatus*** (Eggers). Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:284. **(tx)** Wood, Stevens, & Lezama 1991b:284.

Page 399 ***swieteniae*** (Blackman). Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:286. **(tx)** Wood, Stevens, & Lezama 1991b:286.

Page 400 ***venustulus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:285. **(tx)** Wood, Stevens, & Lezama 1991b:285.

Page 400 ***venustus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:284. **(tx)** Wood, Stevens, & Lezama 1991b:284.

Page 400 ***volcanus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:286. **(tx)** Wood, Stevens, & Lezama 1991b:286.

Add species: **_*electrosinus_** Bright & Poinar 1994:183. Holotype (♂); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:184.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: **(tx)** Bright & Poinar 1994:183.

*neoschwarzi Bright & Poinar 1994:183. Holotype (sex?); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:185.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: **(tx)** Bright & Poinar 1994:183.

TRIBE SCOLYTOPLATYPODINI

Page 401 **Scolytoplatypodidae.** Add:
REFERENCES: **(tx)** Pfeffer 1994c:31.

Genus **Scolytoplatypus** Schaufuss

Page 401 **_africanus_** Eggers. Add:
DISTRIBUTION: AFRICA: Cameroon, South Africa. ATLANTIC ISLANDS: Canary Islands.
HOSTS: *Notobuxus macowani.*

Page 402 **_daimio_** Blandford. Add:
REFERENCES: **(ec)** Nakasima et al. 1992:243.

Page 402 **_eichelbaumi_** Hagedorn. Add:
HOSTS: *Bussea ocidentalis.*

Page 403 **_fasciatus_** Hagedorn. Add:
HOSTS: *Diospyros whyteana, Fagara capensis, Maytenus peduncularis, Notobuxus macowani, Ochna oconnorii, Olea capensis, Xymalos monospora.*

Page 403 **_glaber_** Eggers. Add:
DISTRIBUTION: ASIA: Indonesia (Sumatra), Malaysia (Sabah).
HOSTS: *Cinnamomum* sp., *Lithocarpus* sp., *Quercus* sp.
REFERENCES: **(ds)** Bright 1994:272.

Page 403 **_hova_** Schaufuss. Add:
HOSTS: *Canarium* sp., *Cassipourea* sp., *Ekebergia suavis, Eugenia jambolana, Ficus soroceoides macrophlebia, Pachytrophe dimepate, Trema orientalis, Tricocodendron* sp., *Urophyllum lyallii.*

Page 403 **_javanus_** Eggers. Add:
DISTRIBUTION: ASIA: Indonesia (Java), Malaysia (Sabah), Thailand.
HOSTS: Numerous species of plants (Browne 1961c:191), also *Litsea megacarpa.*
REFERENCES: **(ds)** Bright 1994:273.

Page 404 **_kivuensis_** Schedl. Add:
DISTRIBUTION: AFRICA: Rwanda, Tanzania.

Page 404 ***mikado*** Blandford. Add:

HOSTS: *Chamaecyparis obtusa, Cleyera japonica, Cryptomeria japonica, Diospyros kaki, Fraxinus* sp., *Lindera erythrocarpa, L. triloba, Podocarpus macrophylla, Quercus acutissima, Q. aliena, Q. stenophylla, Q. variabilis, Ulmus davidiana japonica.*

REFERENCES: (**ec**) Kajimura & Hijii 1994a; Kinuura & Hijii 1991; Kinuura, Hijii & Kanamitsu 1991; Nakasima et al. 1992:244. (**hb**) Kinuura & Hijii 1991. (**tx**) Yang & Sun 1991:66.

Page 404 *sinensis* Tsai & Huang (synonym of ***mikado*** Blandford). Add:

REFERENCES: (**tx**) Yang & Sun 1991:66.

Page 404 ***minimus*** Hagedorn. Add:

DISTRIBUTION: ASIA: Thailand.

HOSTS: *Cinnamomum iners.*

Page 405 ***opacicollis*** Eggers. Add:

DISTRIBUTION: AFRICA: South Africa.

Page 405 ***parvus*** Sampson. Add:

HOSTS: *Dryobalanops oblongifolia, Heritiera javanica, Palaquium mainguyi, P. stellatum, Shorea gysbertsiana.*

Page 405 ***permirus*** Schaufuss. Add:

HOSTS: *Alchornea* cfr. *coriacea, Canarium* sp., *Cassia* sp., *Cassipourea* sp., *Cinchona ledgeriana, C. succirubra, Ekebergia suavis, Eleocarpus sericeus, Eugenia jambolana, Ficus soroceoides macrophlebia, Ilex mitis, Mangifera indica, Pachytrophe dimepate, Psychotia* sp., *Terminalia* sp., *Trema orientalis, Urophyllum lyallii, Vernonia* sp.

Page 406 ***pubescens*** Hagedorn. Add:

DISTRIBUTION: ASIA: Burma, Taiwan, Thailand.

HOSTS: *Cinnamomum* sp., *Symplocos theaefolia.*

Page 406 ***pusillus*** Eggers. Add:

DISTRIBUTION: ASIA: Malaysia.

Page 406 ***raja*** Blandford. Add:

DISTRIBUTION: ASIA: China (Xizang), Malaysia, Taiwan, Thailand, Vietnam.

HOSTS: *Cinnamomum iners.*

Page 407 ***supercilliosus*** Tsai & Huang. Add:

DISTRIBUTION: ASIA: China (Xizang).

REFERENCES: (**tx**) Yang & Sun 1991:66.

Page 407 ***tycon*** Blandford. Add:

DISTRIBUTION: ASIA: Taiwan.

REFERENCES: (**ec**) Nakasima et al. 1992:244. (**hb**) Osumi & Mizuno 1992.

Add species: ***carinatus*** Bright 1994:269. Holotype (♂): Borneo, Sabah, Mt. Kinabalu National Park, Headquarters 1558 m; DEBC, Ottawa.
FIGURES: Bright 1994:273 (antenna).
DISTRIBUTION: ASIA: Malaysia (Sabah).
HOSTS: *Ficus* sp.
REFERENCES: (**tx**) Bright 1994:269.

reticulatus Bright 1994:270. Holotype (♂): Borneo, Sabah, Mt. Kinabalu National Park, Poring Hot Spgs., 850 m; DEBC, Ottawa.
FIGURES: Bright 1994:273 (antenna).
DISTRIBUTION: ASIA: Malaysia (Sabah).
REFERENCES: (**tx**) Bright 1994:270.

TRIBE MICRACINI

Page 408 **Micracini.** Add:
REFERENCES: (**tx**) Pfeffer 1994c:195.

Genus **Lanurgus** Eggers

Page 408 ***barbatus*** Eggers. Add:
HOSTS: *Apodytes dimidiata.*

Page 408 ***bicolor*** Schedl. Add:
HOSTS: *Podocarpus falcatus, Rapanea melanophloeos.*
REFERENCES: (**ds**) Schedl 1965h:112.

Page 408 ***elongatus*** (Schedl). Add:
HOSTS: *Cryptostegis madagascariensis.*

Page 408 ***gracilis*** Schedl. Add:
HOSTS: *Cassinae aethiopica.*
REFERENCES: (**ds**) Schedl 1982:278.

Page 408 ***minor*** (Schedl). Add:
HOSTS: *Embelia incumbens.*

Page 409 ***minutissimus*** Schedl. Add;
HOSTS: *Eugenia* sp., *Leptolaena pauciflora.*

Page 409 ***podocarpi*** Schedl. Add:
HOSTS: *Podocarpus falcatus, P. latifolius.*

Page 409 ***pygmaeus*** Schedl. Add:
HOSTS: *Foetidia obliqua.*

Page 409 ***spathulatus*** Schedl. Add:
HOSTS: *Cassinae aethiopica, C. schlechteri, Cordia caffra, Eleodendron* sp., *Olea africana.*

Page 409 ***xylographus*** Schedl. Add:
HOSTS: *Atalya natalensis, Maytenus peduncularis.*

Genus **Traglostus** Schedl

Page 410 ***brevisetosus*** Schedl. Add:
HOSTS: *Celtis africana, Podocarpus latifolius, Xymalos monospora.*

Page 410 ***exornatus*** Schedl. Add:
DISTRIBUTION: AFRICA: Tanzania.

Genus **Miocryphalus** Schedl

Page 410 ***attenuatus*** (Eggers). Add:
DISTRIBUTION: AFRICA: Cameroon, Côte d'Ivorie.
REFERENCES: **(ds)** Medler 1980:290.

Page 410 ***congonus*** Eggers. Add:
DISTRIBUTION: AFRICA: Rwanda.

Page 410 ***dubius*** Schedl. Add:
DISTRIBUTION: AFRICA: Kenya.

Page 411 ***grobleri*** Schedl. Add:
HOSTS: *Vergilia* sp.

Genus **Pseudothysanoes** Blackman

Page 411 **Pseudothysanoes** Blackman. Add:
KEYS: Wood, Stevens, & Lezama 1991b:287 (to Costa Rican species).
REFERENCES: **(tx)** Pfeffer 1994c:196; Wood, Stevens, & Lezama 1991b:287.

Page 411 ***abbreviatus*** (Schedl). Add:
REFERENCES: **(tx)** Marinoni et al. 1992:123.

Page 412 ***acacicolens*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:288. **(tx)** Wood, Stevens, & Lezama 1991b:288.

Page 412 ***arbuti*** (Wood). Add:
HOSTS: *Arbutus xalapensis*.

Page 412 ***bellus*** (Schedl). Add:
REFERENCES: **(tx)** Marinoni et al. 1992:123.

Page 412 ***brunneus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: United States (**New Mexico**).

Page 412 ***caritus*** (Wood). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:288. **(tx)** Wood, Stevens, & Lezama 1991b:288.

Page 413 ***contrarius*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Veracruz**).
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:463.

Page 413 ***dimorphus*** (Schedl). Add:
REFERENCES: **(tx)** Marinoni et al. 1992:123.

Page 413 ***dislocatus*** (Blackman). Add:
HOSTS: *Carya ovata*.

Page 413 ***fimbriatus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Veracruz**).
HOSTS: *Phoradendron calyculatum, P. falcatum.*
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:463.

Page 413 ***frondicolens*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: United States (**Southern California**).

Page 413 ***funebris*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Oaxaca**?).

Page 414 ***furvus*** Wood. Add:
HOSTS: *Heliocarpus macrocarpus.*
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:288. (**tx**) Wood, Stevens, & Lezama 1991b:288.

Page 414 ***guevinae*** (Schedl). Add:
REFERENCES: (**ds**) Schedl 1975d:12.

Page 414 ***huachucae*** Blackman. Add:
DISTRIBUTION: NORTH AMERICA: United States (**New Mexico, Texas**).
HOSTS: Mistletoe on *Quercus* sp.

Page 414 ***lecontei*** Blackman. Add:
HOSTS: *Carya glabra, Quercus alba.*
REFERENCES: (**hb**) Weber & McPherson 1991.

Page 415 ***mongolica*** (Sokanovskii). Add:
FIGURES: Pfeffer 1994c:270 (adult features).
REFERENCES: (**ds**) Pfeffer 1994c:196. (**tx**) Pfeffer 1994c:196.

Page 415 ***peniculus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Mexico**).
HOSTS: *Psittacanthus* sp.

Page 415 ***phoradendri*** Blackman. Add:
DISTRIBUTION: NORTH AMERICA: United States (Florida).
HOSTS: *Phoradendron serotinum.*

Page 416 ***plaumanni*** (Schedl). Add:
REFERENCES: (**tx**) Marinoni et al. 1992:123.

Page 416 ***querneus*** Wood. Add:
HOSTS: *Quercus laurina.*

Page 416 ***rigidus*** (LeConte). Add:
REFERENCES: (**ds**) Laplante et al. 1991:115; Larochelle 1979:50. (**hb**) Weber & McPherson 1991.

Page 417 ***securigerus*** (Blackman). Add:
REFERENCES: (**ds**) Atkinson & Peck 1994:320; Frank & McCoy 1992:6. (**hb**) Atkinson & Peck 1994:320.

Page 417 ***spicatus*** (Wood). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:288. (**tx**) Wood, Stevens, & Lezama 1991b:288.

Page 418 ***tenellus*** Wood. Add:
HOSTS: *Struthanthus* sp.

Page 418 ***unimodus*** (Schedl). Add:
REFERENCES: **(tx)** Marinoni et al. 1992:125.

Page 419 ***yuccavorus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Hidalgo**).

Genus **Saurotocis** Wood

Page 419 ***dispar*** (Schedl). Add:
HOSTS: *Ocotea cymosa.*

Page 419 ***tomicoides*** (Schedl). Add:
HOSTS: *Ocotea cymosa, O. laens.*

Genus **Thysanoes** LeConte

Page 420 ***fimbricornis*** LeConte. Add:
HOSTS: *Cestrum* sp.
REFERENCES: **(ds)** Atkinson & Peck 1994:320; Noguera-Martinez & Atkinson 1990:463. **(hb)** Atkinson & Peck 1994:320; Noguera-Martinez & Atkinson 1990:463; Weber & McPherson 1991.

Page 420 ***neotropicalis*** Wood. Add:
REFERENCES: **(tx)** Wood, Stevens, & Lezama 1991a:132.

Genus **Phloeocleptus** Wood

Page 421 ***caudatus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Veracruz**).
HOSTS: *Persea americana.*
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:463.

Page 421 ***cristatus*** Wood. Add:
HOSTS: *Persea americana.*

Page 422 ***punctatus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:133. **(tx)** Wood, Stevens, & Lezama 1991a:133.

Page 422 ***tresmariae*** (Schedl). Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.

Genus **Hylocurus** Eichhoff

Page 422 **Hylocurus** Eichhoff. Add:
KEYS: Wood, Stevens, & Lezama 1991b:288 (to Costa Rican species).
REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994. **(tx)** Wood, Stevens, & Lezama 1991b:288.

Page 422 ***aberrans*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:288. **(tx)** Wood, Stevens, & Lezama 1991b:288.

Page 422 ***alternatus*** Eggers. Add:
DISTRIBUTION: NORTH AMERICA: Costa Rica.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:288. **(tx)** Wood, Stevens, & Lezama 1991b:288.

Page 422 ***atkinsoni*** Wood. Add:
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:463. **(hb)** Noguera-Martinez & Atkinson 1990:463.

Page 423 ***bicornus*** (Blackman). Add:
FIGURES: Atkinson 1989b:328 (♀ and ♂ frons).
HOSTS: *Carya ovata.*

Page 423 ***bidentatus*** Schedl. Add:
DISTRIBUTION: SOUTH AMERICA: Argentina.
REFERENCES: **(tx)** Marinoni et al. 1992:124.

Page 423 ***binodatus*** Wood. Add:
FIGURES: Atkinson 1989b:328 (♀ and ♂ frons, ♀ elytral declivity).
DISTRIBUTION: NORTH AMERICA: United States (Michigan, **Oklahoma, Texas**?).
HOSTS: *Carya ovata.*

Page 423 ***cancellatus*** Blandford. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Chiapas, Oaxaca**).

Page 423 ***carinifrons*** Atkinson. Add:
FIGURES: Atkinson 1989b:332 (adult, ♀ and ♂ frons).

Page 424 ***dimorphus*** (Schedl). Add:
REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Page 424 ***dubius*** Schedl. Add:
REFERENCES: **(tx)** Marinoni et al. 1992:124.

Page 424 ***elegans*** Eichhoff. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Chiapas**).
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:288. **(tx)** Wood, Stevens, & Lezama 1991b:288.

Page 424 ***femineus*** Wood. Add:
HOSTS: *Brogniartia alamosana.*

Page 425 ***floridensis*** Atkinson. Add:
FIGURES: Atkinson 1989b:332 (adult, ♂ elytral declivity, ♂ frons).

Page 425 ***giganteus*** (Schedl). Add:
REFERENCES: **(tx)** Marinoni et al. 1992:124.

Page 425 ***hirtellus*** (LeConte). Add:
DISTRIBUTION: NORTH AMERICA: Canada (British Columbia).
REFERENCES: **(ds)** Bright & Skidmore 1991; Scudder 1994:53.

Page 426 ***intermedius*** Schedl. Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.

Page 426 ***interruptus*** Schedl. Add:
REFERENCES: **(tx)** Marinoni et al. 1992:124.

Page 426 ***nodulus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: El Salvador.
HOSTS: *Pinus oocarpa.*
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:288. **(tx)** Wood, Stevens, & Lezama 1991b:288.

Page 426 ***parkinsoniae*** Blackman. Add:
REFERENCES: **(ec)** Dajoz 1993.

Page 426 ***pilosus*** Schedl. Add:
REFERENCES: **(tx)** Marinoni et al. 1992:124.

Page 427 ***pseudoimpar*** Schedl. Add:
REFERENCES: **(tx)** Marinoni et al. 1992:124.

Page 428 ***simplex*** Blandford. Add:
HOSTS: *Pinus oocarpa.*
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:288. **(tx)** Wood, Stevens, & Lezama 1991b:288.

Page 428 ***subgranulatus*** Schedl. Add:
REFERENCES: **(tx)** Marinoni et al. 1992:124.

Page 428 ***torosus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: United States (**Pennsylvania**).
NOTES: Atkinson 1989b:327 (treats this taxon as a synonym of ***rudis***).
REFERENCES: **(hb)** Weber & McPherson 1991.

Page 428 ***trispinatus*** Schedl. Add:
REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Genus **Phloeocurus** Wood

Page 429 ***africanus*** (Schedl). Add:
DISTRIBUTION: AFRICA: South Africa.

Genus **Micracisella** Blackman

Page 429 ***divaricata*** Wood. Add:
HOSTS: *Phoradendron* sp., *Struthanthus* sp.

Page 430 ***knulli*** (Blackman). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Oaxaca**).

Page 430 ***nanula*** (LeConte). Add:
DISTRIBUTION: NORTH AMERICA: United States (**Oklahoma**).
REFERENCES: **(ds)** Atkinson & Peck 1994:320. **(hb)** Atkinson & Peck 1994:320.

Page 430 ***nigra*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:133. **(tx)** Wood, Stevens, & Lezama 1991a:133.

Page 430 ***opacicollis*** (LeConte). Add:
DISTRIBUTION: NORTH AMERICA: United States (**Georgia**).
REFERENCES: **(cn)** Schuder 1969:82.

Genus **Micracis** LeConte

Page 431 **Micracis** LeConte. Add:
KEYS: Wood, Stevens, & Lezama 1991b:288 (to Costa Rican species).
REFERENCES: **(tx)** Wood, Stevens, & Lezama 1991b:288.

Page 431 ***amplinis*** Wood. Add:
HOSTS: *Quercus laurina.*

Page 432 ***carinulus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:288. **(tx)** Wood, Stevens, & Lezama 1991b:288.

Page 432 ***festivus*** Wood. Add:
HOSTS: *Inga* sp.

Page 432 ***grandis*** Schedl. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:288. **(tx)** Wood, Stevens, & Lezama 1991b:288.

Page 432 ***lepidus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:288. **(tx)** Wood, Stevens, & Lezama 1991b:288.

Page 432 ***lignator*** Blackman. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Guerrero, Nuevo León, Veracruz**).
REFERENCES: **(ds)** Noguero-Martinez & Atkinson 1990:463. **(hb)** Noguero-Martinez & Atkinson 1990:463.

Page 433 ***ovatus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Veracruz, Xalapa**).
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:463. **(hb)** Noguera-Martinez & Atkinson 1990:463.

Page 433 ***suturalis*** LeConte. Add:
DISTRIBUTION: NORTH AMERICA: Canada (Quebec).
HOSTS: *Parthenocissus quinquefolia, Ulmus americana.*
REFERENCES: **(cn)** Campbell, Sarazin, & Lyons 1989:369. **(ds)** Campbell, Sarazin, & Lyons 1989:369; Chantal 1992. **(hb)** Weber & McPherson 1991.

Page 433 ***swainei*** Blackman. Add:
REFERENCES: **(cn)** Campbell, Sarazin, & Lyons 1989:369. **(ds)** Atkinson & Peck 1994:320; Campbell, Sarazin, & Lyons 1989:369. **(hb)** Atkinson & Peck 1994:320.

New Genus: ***Micracites** Bright & Poinar 1994:184. Type species: ***Micracites squamifera*** Bright & Poinar, monotypic.
REFERENCES: **(tx)** Bright & Poinar 1994:184.

****squamifera*** Bright & Poinar 1994:186. Holotype (♂?); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:185.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: **(tx)** Bright & Poinar 1994:186.

TRIBE CARPHODICTICINI

Genus **Craniodicticus** Blandford

Page 437 ***minor*** Eggers. Add:
DISTRIBUTION: ASIA: Vietnam.

TRIBE IPINI

Page 438 **Ipini.** Add:
KEYS: Lombardero 1994:248 (to genera of northwest Spain); Pfeffer 1994c:149 (to Palearctic genera).
REFERENCES: (**tx**) Lombardero 1994:248; Pfeffer 1994c:149.

Page 438 **Ipinae**. Add:
KEYS: Pfeffer 1994a:160 (to Central Europe tribes); 1994c:109 (to European tribes).
REFERENCES: (**tx**) Pfeffer 1994a:160, 1994c:109.

Genus **Dendrochilus** Schedl

Page 438 ***arundinarius*** Schedl. Add:
REFERENCES: (**tx**) Schedl 1979c:27.

Genus **Pityogenes** Bedel

Page 438 **Pityogenes** Bedel. Add:
KEYS: Lekander 1968:84 (to larvae of Scandinavian species); Lombardero 1994:250 (to species in northwest Spain); Pfeffer 1994a:171 (to Central European species), 1994c:151 (to Palearctic species).
REFERENCES: (**an**) Lekander 1968:83. (**tx**) Ferreira 1992b; Lekander 1968; Lombardero 1994:249; Pfeffer 1994a:171, 1994c:151.

Page 439 ***bidentatus*** (Herbst). Add:
FIGURES: Lombardero 1994:255 (adult features, aedeagus, gallery); Pfeffer 1994c:294 (♀ frons), 297 (elytral declivity), 303 (gallery).
DISTRIBUTION: EUROPE: Ireland, Portugal.
HOSTS: *Abies pectinata, Larix decidua, L. europaea, Picea excelsa, P. obovata, P. orientalis, P. pungens, Pinus cembra, P. mugo, P. nigra, P. nigra balcanica, P. nigra cevennensis, P. pumila, P. rotundata, P. sibirica, P. strobus, P. sylvestris, Pseudotsuga menziesii.*
REFERENCES: (**an**) Lombardero 1992a. (**bv**) Rauhut, Schmidt, & Schmidt 1993; Tunset, Nilssen, & Anderson 1993. (**cn**) Ferreira 1992b; Karadzic, Knezevic, & Mihajlovic 1990:198. (**ds**) Balazuc 1984:310; Balazy & Michalski 1962a:204; Burakowski et al. 1992:64; Fernandez Fernandez 1992:526; Ferreira 1992b; Gillerfors 1988:43; Hoebeke 1994; Johansson, Anderson, & Nilssen 1994; Karadzic, Knezevic, & Mihajlovic 1990:198; Lombardero 1994:250; Michalski & Ratajczak 1994; Morris 1993:296; Nilssen 1993; O'Conner, Winter, & Good 1991:404,406; Schott 1986:58; Siitonen 1990; Titovsek 1983:410. (**ec**) Ferreira 1992b; Galoux 1947e; Michalski & Ratajczak 1994; Michalski, Kaczmarek, & Ratajczak 1992a, 1992b:144; Nilssen 1993; Trojan et al. 1994:91; Tunset, Nilssen, & Anderson 1993. (**hb**) Balazy & Michalski 1962a:204;

Ferreira 1992b; Koch 1992:165. **(tx)** Burakowski et al. 1992:64; Lombardero 1992a, 1994:250.

Page 442 ***bistridentatus*** (Eichhoff). Add:
FIGURES: Pfeffer 1994a:171 (elytral declivity), 1994c:294 (frons), 296 (elytral declivity), 310 (gallery).
DISTRIBUTION: EUROPE: Bosnia & Herzegovina, Macedonia, Slovenia, S. Russia (Caucasus), Ukraine.
HOSTS: *Larix decidua, Picea excelsa, Pinus cembra, P. mugo, P. nigra balcanica, P. nigra banatica, P. nigra cevennensis, P. nigra laricio, P. nigra pallasiana, P. pinaster, P. sylvestris.*
REFERENCES: **(bv)** Baltensweiler 1975. **(cn)** Karadzic, Knezevic, & Mihajlovic 1990:198. **(ds)** Burakowski et al. 1992:66; Dajoz 1990; Karadzic, Knezevic, & Mihajlovic 1990:198; Pfeffer 1994c:156; Titovsek 1983:409. **(ec)** Dajoz 1990. **(hb)** Koch 1992:165. **(tx)** Burakowski et al. 1992:66; Pfeffer 1994a:172, 1994c:156.

Page 444 ***calcaratus*** (Eichhoff). Add:
FIGURES: Lombardero 1994:255, Plate 5 (adult features, aedeagus, gallery); Pfeffer 1994c:294 (frons), 297 (elytral declivity).
DISTRIBUTION: EUROPE: Portugal, Ukraine.
HOSTS: *Pinus nigra, P. pinaster, P. pinea, Pseudotsuga menziesii.*
REFERENCES: **(an)** Francke et al. 1989; Lombardero 1992a. **(bv)** Francke et al. 1989. **(cn)** Mendel, Boneh, & Riov 1992. **(ds)** Fernandez Fernandez 1992:526; Lombardero 1994:254; Pfeffer 1994c:157; Titovsek 1983:410. **(ec)** Markalas 1991:74; Mendel, Podoler, & Livne 1990. **(hb)** Lombardero 1994:254; Mendel et al. 1991. **(tx)** Lombardero 1992a, 1994:254; Pfeffer 1994c:157.

Page 445 ***carinulatus*** (LeConte). Add:
REFERENCES: **(ms)** Skirkevicius 1993:60.

Page 445 ***chalcographus*** (Linnaeus). Add:
FIGURES: Joly 1977:9 (gallery); Lekander 1968:177 (larval characters); Pfeffer 1994c:294 (♀ frons), 295 (elytral declivity), 301 (gallery); Xiao 1992:632 (adult, gallery).
DISTRIBUTION: ASIA: China. EUROPE: Bulgaria, Czechoslovakia, Ireland (imported).
HOSTS: *Abies pectinata, Juniperus communis, Larix decidua, L. europaea, L. gmelinii, L. sibirica, Picea abies, P. excelsa, P. glehnii, P. jezoensis, P. obovata, P. omorica, P. orientalis, P. sitchensis, Pinus banksiana, P. cembra, P. densiflora, P. koraiensis, P. mugo, P. pentaphylla, P. peuce, P. pumila, P. rotundata, P. sibirica, P. strobus, P. sylvestris, Pseudotsuga menziesii.*
REFERENCES: **(an)** Francke et al. 1989; Lekander 1968:85; Ritzengruber 1990; Schreiber 1991. **(bv)** Baader & Vité 1990; Birgersson et al. 1990a; Byers 1992c, 1993b; Byers et al. 1990a; Francke et al. 1989; Führer, Hausmann, & Wiener 1991, 1993; Führer, Wiener, & Hausmann 1992; Lobinger 1994; Muona & Rutanen 1993; Otte 1989:239; Rauhut, Schmidt, & Schmidt 1993; Schlyter 1992; Schmutzenhofer 1993; Teale et al. 1991; Tunset, Nilssen, & Anderson 1993; Wegensteiner & Führer 1991; Yakaitis 1988; Zuber & Benz 1992. **(cn)** Baader & Vité 1990; Bathon 1991; Busch 1990;

Byers 1992b, 1993b; Eidmann, Lindelow, & Solbreck 1992; Fang, Roques, & Sun 1988; Führer 1977; Kohnle et al. 1992a; Kolk 1992; Niemeyer 1989, 1992; Proft et al. 1992; Saarenmaa 1990; Schreiber 1991; Schröter 1991; Titovsek 1993b; Trofimov & Lipatkin 1989; Vité & Baader 1991; Wulf 1991b; Wulf & Scheidemann 1990; Wulf, Pehl, & Berendes 1993; Zach 1991. **(ds)** Bain 1977b:17; Balazy & Michalski 1962a:204; Burakowski et al. 1992:66; Fang, Roques, & Sun 1988; Führer 1977b, 1984; Gogniat 1991:26; Johansson, Anderson, & Nilssen 1994; Koponen & Nuorteva 1973:26; Michalski & Ratajczak 1994; O'Conner, Winter, & Good 1991:404,406; Pfeffer 1994c:152; Ritzengruber 1990; Schott 1986:58; Siitonen 1990; Titovsek 1983:406; Xiao 1992:632. **(ec)** Baier 1991, 1994; Dippel 1991; Eck 1990b; Heliövaara & Väisänen 1991; Hilt & Ammer 1994; Lobinger 1994; Michalski & Ratajczak 1994; Michalski, Kaczmarek, & Ratajczak 1992a; Muona & Rutanen 1993; Nicolai et al. 1992; Otte 1989:239; Ounap 1992; Prihoda 1987; Trojan et al. 1994:91; Tunset, Nilssen, & Andersson 1993; Väisänen, Bistrom, & Heliövaara 1993; Weslien 1992c; Wigger 1993, 1994. **(hb)** Baier 1994; Balazy & Michalski 1962a:204; Byers 1992c; Führer, Hausmann, & Wiener 1993; Koch 1992:164; Nishiguchi 1960a; Rauhut, Schmidt, & Schmidt 1993; Schlyter 1992; Skatulla & Feicht 1992; Wegensteiner & Führer 1991. **(ms)** Skirkevicius 1993:60. **(tx)** Burakowski et al. 1992:66; Cavey, Passoa, & Kucera 1994:15; Lekander 1968; Pfeffer 1994c:152; Xiao 1992:632.

Page 451 ***conjunctus*** Reitter. Add:

FIGURES: Pfeffer 1994a:171 (elytral declivity), 1994c:294 (♀ frons), 296 (elytral declivity).

DISTRIBUTION: EUROPE: Slovenia.

HOSTS: *Pinus cembra, P. leucodermis, P. mugo, P. pentaphylla, P. peuce, P. pumila, P. rotundata, P. sibirica.*

REFERENCES: **(ds)** Pfeffer 1994c:156; Titovsek 1983:410. **(hb)** Koch 1992:165. **(tx)** Pfeffer 1994a:172, 1994c:156.

Page 452 ***hopkinsi*** Swaine. Add:

DISTRIBUTION: NORTH AMERICA: United States (**Iowa**).

REFERENCES: **(cn)** Robertson 1990. **(ds)** Bain 1977b:17; Dearborn & Donahue 1993:81; Laplante et al. 1991:116; Larochelle 1979:51. **(ec)** Bickel 1985; Nevill & Alexander 1992a, 1992b; Triplehorn 1990:295. **(hb)** Robertson 1990; Weber & McPherson 1991.

Page 452 ***irkutensis*** Eggers. Add:

FIGURES: Pfeffer 1994c:294 (frons), 295 (elytral declivity), 305 (gallery).

NOTES: Pfeffer 1994c:154 (recognizes two subspecies, *irkutensis* and *monacensis*).

REFERENCES: **(ds)** Burakowski et al. 1992:67; Michalski & Ratajczak 1994; Nilssen 1993; Pfeffer 1994c:154; Siitonen 1990. **(ec)** Michalski & Ratajczak 1994. **(hb)** Koch 1992:165. **(tx)** Burakowski et al. 1992:67; Pfeffer 1994a:172, 1994c:154.

Page 453 *monacensis* Fuchs (synonym of ***irkutensis*** Eggers). Add:

NOTES: Pfeffer 1994c:154 (treats this taxon as a subspecies of ***irkutensis***).

REFERENCES: **(ds)** Pfeffer 1994c:154. **(tx)** Pfeffer 1994c:154.

Page 453 ***knechteli*** Swaine. Add:
REFERENCES: **(bv)** Poland & Borden 1994b. **(ec)** Jacobi 1993; Poland & Borden 1994a.

Page 454 ***pennidens*** (Reitter). Add:
DISTRIBUTION: ASIA: Cyprus, Israel, S. Russia (Caucasus).
HOSTS: *Pinus halepensis.*
REFERENCES: **(ds)** Pfeffer 1994c:158. **(tx)** Pfeffer 1994c:158.

Page 454 ***plagiatus*** (LeConte). Add:
REFERENCES: **(ds)** Laplante et al. 1991:116; Larochelle 1979:51; Winter 1991a. **(hb)** Weber & McPherson 1991.

Page 455 ***porifrons*** Eggers. Add:
FIGURES: Pfeffer 1994c:29[illegible]ons), 296,297 (elytral declivity).
DISTRIBUTION: EUROPE: Greece.
HOSTS: *Pinus nigra pallasiana.*
REFERENCES: **(ds)** Pfeffer 1994c:155. **(tx)** Pfeffer 1994c:155.

Page 455 ***quadridens*** (Hartig). Add:
FIGURES: Lekander 1968:178 (larval characters); Pfeffer 1994c:276 (elytral declivity), 304 (gallery).
DISTRIBUTION: EUROPE: Ireland, United Kingdom.
HOSTS: *Abies pectinata, Juniperus communis, Larix decidua, L. europaea, Picea excelsa, Pinus cembra, P. leucodermis, P. mugo, P. nigra, P. nigra pallasiana, P. peuce, P. rotundata, P. strobus, P. sylvestris, Pseudotsuga menziesii.*
REFERENCES: **(an)** Francke et al. 1989; Lekander 1968:86. **(bv)** Francke et al. 1989. **(cn)** Hyman 1992:401; Karadzic, Knezevic, & Mihajlovic 1990:198; Vouland, Cornic, & DuMerle 1990. **(ds)** Balazy & Michalski 1962a:204; Burakowski et al. 1992:68; Gogniat 1991:26; Hansen et al. 1994:88; Hyman 1992:401; Karadzic, Knezevic, & Mihajlovic 1990:198; Koponen & Nuorteva 1973:26; Michalski & Ratajczak 1994; Morris 1993:296; Nilssen 1993; O'Conner, Winter, & Good 1991:404,406; Pfeffer 1994c:155; Schott 1986:58; Siitonen 1990; Titovsek 1983:409. **(ec)** Heliövaara & Väisänen 1991; Hyman 1992:401; Michalski & Ratajczak 1994; Nilssen 1993; Trojan et al. 1994:91. **(hb)** Balazy & Michalski 1962a:204; Koch 1992:165. **(tx)** Burakowski et al. 1992:68; Lekander 1968; Pfeffer 1994a:172, 1994c:155.

Page 457 ***rudnevi*** Sokanovskii. Add:
FIGURES: Yin, Huang, & Li 1984:125 (♀ frons, gallery).
REFERENCES: **(ds)** Yin, Huang, & Li 1984:124.

Page 457 ***saalasi*** Eggers. Add:
REFERENCES: **(ds)** Burakowski et al. 1992:69; Heliövaara, Väisänen, & Immonen 1991; Pfeffer 1994c:153. **(tx)** Burakowski et al. 1992:69; Pfeffer 1994c:153.

Page 457 ***scitus*** Blandford. Add:
HOSTS: *Pinus longifolia.*

Page 458 ***seirindensis*** Murayama. Add:
REFERENCES: **(hb)** Nishiguchi 1960a.

Page 458 ***spessivtsevi*** Lebedev. Add:

DISTRIBUTION: ASIA: Kazakhstan, Kyrgyzstan, Tajikistan.

REFERENCES: **(ds)** Pfeffer 1994c:154. **(tx)** Pfeffer 1994c:154.

Page 458 ***trepanatus*** (Nördlinger). Add:

FIGURES: Lekander 1968:177 (larval characters); Lombardero 1994:267, Plate 5 (adult features, aedeagus, gallery); Pfeffer 1994c:294 (♀ frons), 295 (elytral declivity), 310 (gallery).

DISTRIBUTION: EUROPE: Portugal, United Kingdom.

HOSTS: *Pinus montana uncinata, P. nigra, P. nigra austriaca, P. nigra cevennensis, P. nigra laricio, P. pinaster, P. radiata.*

REFERENCES: **(an)** Lekander 1968:86. **(cn)** Ferreira 1992a; Hyman 1992:401. **(ds)** Burakowski et al. 1992:69; Ferreira 1992a; Hansen et al. 1990:28; Hyman 1992:401; Lombardero 1994:264; Nilssen 1993; Pfeffer 1994c:153; Titovsek 1983:408. **(ec)** Ferreira 1992a; Hyman 1992:401; Trojan et al. 1994:91. **(hb)** Ferreira 1992a; Koch 1992:164; Lombardero 1994:264. **(tx)** Burakowski et al. 1992:69; Lekander 1968; Lombardero 1994:264; Pfeffer 1994c:153.

Genus **Pityokteines** Fuchs

Page 459 **Pityokteines** Fuchs. Add:

KEYS: Pfeffer 1994c:158 (to Palearctic species).

REFERENCES: **(tx)** Pfeffer 1994c:158.

Page 460 ***curvidens*** (Germar). Add:

FIGURES: Joly 1977:9 (gallery); Pfeffer 1989a:pl. 10 (elytral declivity), 1994c:276 (outline of elytral apex), 306 (gallery).

DISTRIBUTION: ASIA: S. Russia (Caucasus).

HOSTS: *Abies alba, A. balsamea, A. borisii regis, A. bornmuelleriana, A. cephalonica, A. cilicica, A. firma, A. fraseri, A. nordmanniana, A. sachalinensis, A. sibirica, Cedrus libanotica, Larix decidua, L. leptolepis, Pinus strobus, P. sylvestris, Pseudotsuga menziesii.*

REFERENCES: **(bv)** Chararas, Ducauze, & Revolon 1978b; Otte 1989:239. **(cn)** Chararas 1975c; Kolk 1992; M 1948; Rieder 1990; Tsankov 1989. **(ds)** Burakowski et al. 1992:70; Gogniat 1991:26; Michalski & Ratajczak 1994; Pfeffer 1994c:159,160; Schott 1986:58; Titovsek 1983:410. **(ec)** Dajoz 1990; Maksymov 1977; Michalski & Ratajczak 1994; Michalski, Kaczmarek, & Ratajczak 1992a; Otte 1989:239; Tsankov, Mirchev, & Ovcharov 1994; Tenkacova & Mituch 1988; Zabecki 1988. **(hb)** Koch 1992:165; Tsankov, Mirchev, & Ovcharov 1994. **(ms)** Skirkevicius 1993:60. **(tx)** Burakowski et al. 1992:70; Pfeffer 1994c:159,160.

Page 462 ***elegans*** Swaine. Add:

REFERENCES: **(ds)** Parsons et al. 1991:59.

Page 464 ***sparsus*** (LeConte). Add:

REFERENCES: **(ds)** Dearborn & Donahue 1993:81; Laplante et al. 1991:116; Larochelle 1979:51. **(ec)** Tomalak, Welch, & Galloway 1990; Triplehorn 1990:302.

Page 465 ***spinidens*** (Reitter). Add:

FIGURES: Pfeffer 1994c:276 (outline of elytral apex, head), 306 (gallery).

DISTRIBUTION: EUROPE: S. Russia (Caucasus).
HOSTS: *Abies bornmuelleriana, A. nordmanniana, Cedrus atlantica glauca, Larix decidua, L. leptolepis, Picea excelsa, P. orientalis, Pinus sylvestris.*
REFERENCES: **(bv)** Otte 1989:239; Zumr 1992a. **(cn)** Chararas 1975c; Kolk 1992; Tsankov 1989; Zach 1991. **(ds)** Balazuc 1984:310; Burakowski et al. 1992:71; Gogniat 1991:26; Kinsky & Zumr 1988; Michalski & Ratajczak 1994; Pfeffer 1994c:159,160; Schott 1986:58; Titovsek 1983:410. **(ec)** Kinsky & Zumr 1988; Michalski & Ratajczak 1994; Michalski, Kaczmarek & Ratajczak 1992b:145; Otte 1989:239; Tsankov, Mirchev, & Ovcharov 1994; Zabecki 1988. **(hb)** Koch 1992:165; Tsankov, Mirchev, & Ovcharov 1994. **(ms)** Skirkevicius 1993:61. **(tx)** Burakowski et al. 1992:71; Pfeffer 1994c:159,160.

Page 466 ***vorontzowi*** (Jacobson). Add:
FIGURES: Pfeffer 1994c:276 (outline of elytral apex, head), 306 (gallery).
DISTRIBUTION: EUROPE: S. Russia (Caucasus).
HOSTS: *Abies alba, A. nordmanniana, Larix decidua, L. leptolepis, Picea excelsa, Pseudotsuga menziesii.*
REFERENCES: **(bv)** Otte 1989:239. **(ds)** Burakowski et al. 1992:72; Gogniat 1991:26; Kinsky & Zumr 1988; Michalski & Ratajczak 1994; Pfeffer 1994c:159,160; Schott 1986:58; Titovsek 1983:410. **(ec)** Kinsky & Zumr 1988; Michalski & Ratajczak 1994; Michalski, Kaczmarek & Ratajczak 1992b:145; Otte 1989:239; Zabecki 1988. **(hb)** Koch 1992:166. **(ms)** Skirkevicius 1993:61. **(tx)** Burakowski et al. 1992:72; Pfeffer 1994c:159,160; Postner 1974:448.

Genus **Orthotomicus** Ferrari

Page 467 **Orthotomicus** Ferrari. Add:
KEYS: Lekander 1968:90 (to larva of Scandinavian species); Lombardero 1994:268 (to species in northwest Spain); Pfeffer 1994a:172 (to Central European species), 1994c:165 (to Palearctic species).
REFERENCES: **(an)** Lekander 1968:87. **(tx)** Lekander 1968; Lombardero 1994:268; Pfeffer 1994a:172, 1994c:165.

Page 467 ***angulatus*** (Eichhoff). Add:
HOSTS: *Pinus thunbergii.*
REFERENCES: **(cn)** Gohda et al. 1964. **(ds)** Lee et al. 1990:17. **(ec)** Urano & Hijii 1991.

Page 467 ***caelatus*** (Eichhoff). Add:
DISTRIBUTION: NORTH AMERICA: **Bahamas**.
REFERENCES: **(cn)** Robertson 1990. **(ds)** Bain 1977b:17; Dearborn & Donahue 1993:81; Laplante et al. 1991:116; Larochelle 1979:51; Schwert 1992:81,84; Winter 1991a. **(ec)** Bickel 1985; Dajoz 1993; Dearborn & Donahue 1993:81; Nevill & Alexander 1992a, 1992b. **(hb)** Robertson 1990; Weber & McPherson 1991.

Page 469 ***laricis*** (Fabricius). Add:
FIGURES: Lekander 1968:183 (larval characters); Lombardero 1994:270, Plate 5 (adult features, aedeagus, gallery); Pfeffer

1994a:174 (elytral declivity), 1994c:277 (antenna), 278 (elytral declivity); Postner 1974:449 (adult); Yin, Huang, & Li 1984:142.

HOSTS: *Abies alba, A. pectinata, Larix decidua, L. gmelinii, L. sibirica, Picea abies. P. excelsa, P. jezoensis, P. obovata, P. orientalis, Pinus cembra, P. densiflora, P. koraiensis, P. mugo, P. nigra, P. nigra pallasiana, P. pinaster, P. radiata, P. sibirica, P. strobus, P. sylvestris.*

REFERENCES: **(an)** Lekander 1968:96. **(bv)** Rauhut, Schmidt, & Schmidt 1993. **(ds)** Bain 1977b:17; Balazuc 1984:310; Balazy & Michalski 1962a:204; Burakowski et al. 1992:74; Fernandez Fernandez 1992:526; Gillerfors 1988:43; Gogniat 1991:26; Lombardero 1994:278; Michalski & Ratajczak 1994; Nilssen 1993; O'Conner, Winter, & Good 1991:404,406; Pfeffer 1994c:171; Schott 1986:58; Siitonen 1990; Titovsek 1983:411. **(ec)** Champion 1917; Michalski & Ratajczak 1994; Nilssen 1993; Trojan et al. 1994:91. **(hb)** Balazy & Michalski 1962a:204; Koch 1992:166. **(tx)** Burakowski et al. 1992:74; Lekander 1968; Lombardero 1994:278; Pfeffer 1994a:175, 1994c:171.

Page 472 ***longicollis*** (Gyllenhal). Add:

FIGURES: Pfeffer 1994c:278 (elytral declivity), 305 (gallery).

DISTRIBUTION: EUROPE: S. Russia (Caucasus).

HOSTS: *Picea excelsa, Pinus brutia, P. halepensis, P. nigra, P. nigra austriaca, P. nigra balcanica, P. nigra laricio, P. nigra pallasiana, P. sylvestris.*

REFERENCES: **(ds)** Burakowski et al. 1992:75; Nilssen 1993; Pfeffer 1994c:166. **(ec)** Markalas 1991:74. **(hb)** Koch 1992:167. **(tx)** Burakowski et al. 1992:75; Pfeffer 1994a:172, 1994c:166.

Page 473 ***pinivora*** Schedl. Add:

REFERENCES: **(ds)** Pfeffer 1994c:166,167. **(tx)** Pfeffer 1994c:166,167.

Page 473 ***proximus*** (Eichhoff). Add:

FIGURES: Lekander 1968:182 (larval characters); Lombardero 1994:283 (aedeagus); Pfeffer 1994a:174 (elytral declivity), 1994c:277 (antenna), 278,293 (elytral declivity), 305 (gallery).

DISTRIBUTION: AFRICA: Algeria. EUROPE: Ukraine.

HOSTS: *Picea excelsa, Pinus cembra, P. halepensis pithyusa, P. nigra, P. nigra austriaca, P. pentaphylla, P. sylvestris.*

REFERENCES: **(an)** Lekander 1968:95. **(ds)** Burakowski et al. 1992:75; Chakali 1992:507; Fernandez Fernandez 1992:526; Koponen & Nuorteva 1973:26; Lombardero 1994:282; Michalski & Ratajczak 1994; Nilssen 1993; Pfeffer 1994c:170; Siitonen 1990; Titovsek 1983:411; Winter 1991a. **(ec)** Löyttyniemi & Uusvaara 1977; Michalski & Ratajczak 1994; Trojan et al. 1994:91. **(hb)** Koch 1992:166. **(tx)** Burakowski et al. 1992:75; Lekander 1968; Lombardero 1994:282; Pfeffer 1994a:175, 1994c:170.

Page 475 ***starki*** Spessivtsev. Add:

FIGURES: Pfeffer 1994c:278 (outline of elytral apex).

HOSTS: *Picea abies.*

REFERENCES: **(ds)** Burakowski et al. 1992:77; Pfeffer 1994c:169. **(tx)** Burakowski et al. 1992:77; Pfeffer 1994c:169.

Page 476 ***suturalis*** (Gyllenhal). Add:

FIGURES: Lekander 1968:182 (larval characters); Lombardero 1994:287, Plate 6 (adult features, aedeagus, gallery); Pfeffer 1994a:174 (elytral declivity), 1994c:278 (elytral declivity), 304 (gallery).

HOSTS: *Larix decidua, Picea abies, P. excelsa, P. glehnii, P. jezoensis, P. obovata, P. orientalis, Pinus cembra, P. densiflora, P. koraiensis, P. nigra, P. nigra austriaca, P. pumila, P. sibirica, P. strobus, P. sylvestris, P. thunbergiana.*

REFERENCES: **(an)** Lekander 1968:95. **(ds)** Balazy & Michalski 1962a:205; Burakowski et al. 1992:77; Johansson, Anderson, & Nilssen 1994; Koponen & Nuorteva 1973:26; Lombardero 1994:284; Michalski & Ratajczak 1994; Nilssen 1993; Pfeffer 1994c:169, 170; Schott 1986:58; Siitonen 1990; Titovsek 1983:411. **(ec)** Korenchenko 1992; Michalski & Ratajczak 1994; Nilssen 1993; Trojan et al. 1994:91. **(hb)** Balazy & Michalski 1962a:205; Koch 1992:166. **(tx)** Burakowski et al. 1992:77; Lekander 1968; Lombardero 1994:284; Pfeffer 1994a:174, 1994c:169,170.

Add species: ***erosus*** (Wollaston). Move from ***Ips***. Add:

FIGURES: Donisthorpe 1931:pl. 4 (adult); Lombardero 1994:270, Plate 5 (adult features, aedeagus, gallery); Pfeffer 1994a:173 (elytral declivity), 1994c:278 (outline of elytral apex); Yin, Huang, & Li 1984:138.

DISTRIBUTION: ATLANTIC ISLANDS: Azores. EUROPE: Finland, Portugal, Sweden (introduced).

HOSTS: *Cedrus atlantica, Pinus brutia, P. canariensis, P. nigra, P. nigra austriaca, P. nigra cevennensis, P. nigra mauretanica, P. nigra pallasiana, P. pinea, P. radiata, P. sylvestris, Pseudotsuga menziesii.*

REFERENCES: **(an)** Francke et al. 1989. **(bv)** Francke et al. 1989; Tribe 1992. **(cn)** Capretti, Panconesi, & Parrini 1987; Mendel, Boneh, & Riov 1992; Wingfield & Swart 1994. **(ds)** Balazuc 1984:310; Barriga et al. 1993:84; Borges 1990:116; Burakowski et al. 1992:73; Chakali 1992: 507; Ciesla 1993:7; Fernandez Fernandez 1992:526; Gillerfors 1988:43,45; Lombardero 1994:269; Pfeffer 1994c:167,170; Siitonen 1990; Titovsek 1983:412; Yin & Huang 1993. **(ec)** Dajoz 1990; Markalas 1991:74; Mendel, Podoler, & Livne 1990; Podoler, Mendel, & Livne 1990. **(hb)** Bevan 1984b; Koch 1992:166; Lombardero 1994:269; Mendel et al. 1991; Tribe 1990b, 1991a. **(tx)** Burakowski et al. 1992:73; Cavey, Passoa, & Kucera 1994:13; Lombardero 1994:269; Pfeffer 1994a:173, 1994c:167,170.

robustus (Knotek). Move from ***Ips***. Add:

FIGURES: Pfeffer 1994a:173, 1994c:278 (outline of elytral apex).

DISTRIBUTION: EUROPE: Austria, Greece, Hungary.

HOSTS: *Cedrus libani, Pinus brutia, P. nigra.*

REFERENCES: **(ds)** Pfeffer 1994a:173, 1994c:168,170. **(hb)** Koch 1992:166. **(tx)** Pfeffer 1994a:173, 1994c:168,170.

tridentatus Eggers (synonym of ***robustus*** (Knotek)). Add:

NOTES: Pfeffer 1994c:168 (treats this taxon as a valid species).

REFERENCES: **(ds)** Pfeffer 1994a:173, 1994c:168,170. **(hb)** Koch 1992:166. **(tx)** Pfeffer 1994a:173, 1994c:168,170.

Genus **Acanthotomicus** Blandford

Page 478 **Acanthotomicus** Blandford. Add:
KEYS: Wood, Stevens, & Lezama 1991b:289 (to Costa Rican species).
REFERENCES: **(tx)** Wood, Stevens, & Lezama 1991b:289.

Page 478 ***alternans*** (Schedl). Add:
REFERENCES: **(tx)** Serafim 1992:194.

Page 479 ***caudatulus*** (Schedl). Add;
DISTRIBUTION: ASIA: Malaysia (Sabah).
REFERENCES: **(ds)** Bright 1994:274.

Page 480 ***chiriquensis*** (Blandford). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:289. **(tx)** Wood, Stevens, & Lezama 1991b:289.

Page 480 ***dentatus*** Schedl. Add:
DISTRIBUTION: ASIA: Malaysia (Pahang).
REFERENCES: **(ds)** Bright 1994:274.

Page 481 ***fortis*** (Wood). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:289. **(tx)** Wood, Stevens, & Lezama 1991b:289.

Page 481 ***ipsiformus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:289. **(tx)** Wood, Stevens, & Lezama 1991b:289.

Page 481 *kelantanensis* (Browne). Move to ***Xyleborus cylindricus*** Eggers as a synonym. Add:
SYNONYMY: Beaver 1995:199.

Page 482 ***mimicus*** (Schedl). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:289. **(tx)** Wood, Stevens, & Lezama 1991b:289.

Page 482 ***octodentatus*** Browne. Add:
HOSTS: *Artocarpus* sp., *Koompassia excelsa, Parishia* sp.
REFERENCES: **(ds)** Ohno 1990c:85.

Page 482 ***peregrinus*** (Schedl). Add:
HOSTS: *Canarium* sp., *Terminalia* sp.
REFERENCES: **(ds)** Ohno 1990c:85.

Page 482 ***perexiguus*** (Blandford). Add:
HOSTS: *Artocarpus* sp., *Canarium* sp.
REFERENCES: **(ds)** Ohno 1990c:85.

Page 484 ***sutirifer*** (Schedl). Add:
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: **(ds)** Medler 1980:290 (mispelled as *suturifer*).

Page 484 ***tropicus*** (Schedl). Add:
HOSTS: *Dialium* sp.
REFERENCES: **(ds)** Ohno 1990c:85.

Add species: ***explanatus*** Bright 1994:257. Holotype (♂); Borneo, Sabah, km 62, Lahad Datu to Danum Valley Field Station, 1558 m; DEBC, Ottawa.

FIGURES: Bright 1994:272 (elytral declivity), 273 (antenna).

DISTRIBUTION: ASIA: Malaysia (Sabah).

REFERENCES: (**tx**) Bright 1994:257.

Genus **Ips** DeGeer

Page 484 **Ips** DeGeer. Add:

KEYS: Lekander 1968:90 (to larvae of Scandinavian species); Pfeffer 1994c:160 (to Palearctic species); Wood, Stevens, & Lezama 1991b:289 (to Costa Rican species).

REFERENCES: (**an**) Lekander 1968:87. (**bv**) Kohnle 1991; Seybold et al. 1992b. (**cn**) Anonymous 1994d; Lowell, Willits, & Krahmer 1992; Smith, Mrowka, & Maupin 1983. (**ec**) Guerra et al. 1992; Pechacek & Kristin 1993. (**ms**) Anonymous 1994d. (**tx**) Lekander 1968; Lombardero 1994:289; Pfeffer 1994c:160; Wood, Stevens, & Lezama 1991b:289.

Page 485 ***acuminatus*** (Gyllenhal). Add:

FIGURES: Lekander 1968:181 (larval characters); Li, Dang, & Shi 1977:189 (adult, gallery); Li & Zhou 1980:189 (adult, gallery); Pfeffer 1989a:pl. 10 (elytral declivity), 1994c:277 (elytral declivity), 304 (gallery); Xiao 1992:619 (adult, gallery).

DISTRIBUTION: ASIA: China. EUROPE: Ireland, S. Russia (Caucasus), Ukraine.

HOSTS: *Larix decidua, Picea abies, P. excelsa, P. obovata, Pinus densiflora. P. khasya, P. koraiensis, P. leucodermis, P. merkusii, P. montana uncinata, P. mugo, P. nigra, P. nigra austriaca, P. nigra balcanica, P. nigra cevennensis, P. nigra pallasiana, P. pentaphylla, P. pumila, P. rotundata, P. sibirica, P. sylvestris, Pseudotsuga* sp.

REFERENCES: (**an**) Gehrken 1992; Lekander 1968:93. (**bv**) Kirkendall 1990. (**cn**) Goix 1977; Karadzic, Knezevic, & Mihajlovic 1990:198; Lieutier 1992; Massel' et al. 1984; Saarenmaa 1990. (**ds**) Balazy & Michalski 1962a:205; Burakowski et al. 1992:78; Dajoz 1990; Gogniat 1991:25; Heliövaara, Väisänen, & Immonen 1991; Hutacharern et al. 1988:30; Johansson, Anderson, & Nilssen 1994; Karadzic, Knezevic, & Mihajlovic 1990:198; Michalski & Ratajczak 1994; Morris 1993:296; O'Conner, Winter, & Good 1991:404,406; Pfeffer 1994c:161; Schott 1986:58; Titovsek 1983:412; Xiao 1992:619. (**ec**) Dajoz 1990; Grissell 1983; Lieutier 1991a; Michalski & Ratajczak 1994; Michalski, Kaczmarek & Ratajczak 1992b:145; Nilssen 1993; Siitonen 1990; Trojan et al. 1994:91. (**hb**) Balazy & Michalski 1962a:205; Goix 1977; Kirkendall 1990; Kirkendall & Stenseth 1990; Koch 1992:167. (**ms**) Skirkevicius 1993:59; Yanabe 1993. (**tx**) Burakowski et al. 1992:75; Lekander 1968; Pfeffer 1994c:161; Yanabe 1993; Xiao 1992:619.

Page 489 ***amitinus*** (Eichhoff). Add:

FIGURES: Lekander 1968:180 (larval characters); Pfeffer 1994c:277 (antenna), 302 (gallery).

HOSTS: *Abies pectinata, Larix decidua, Picea abies, P. omorika, Pinus cembra, P. leucodermis, P. montana, P. mugo, P. nigra, P. nigra austriaca, P. peuce, P. rotundata, P. sylvestris.*
REFERENCES: **(an)** Lekander 1968:93. **(bv)** Zuber 1994; Zuber et al. 1993. **(cn)** Kolk 1992; Richter 1989; Zach 1991. **(ds)** Balazy & Michalski 1962a:206; Burakowski et al. 1992:79; Heliövaara, Väisänen, & Immonen 1991; Michalski & Ratajczak 1994; O'Conner, Winter, & Good 1991:408; Pfeffer 1994c:165; Winter 1991a. **(ec)** Eck 1990b; Michalski & Ratajczak 1994. **(hb)** Balazy & Michalski 1962a:206; Koch 1992:167; Richter 1989. **(ms)** Skirkevicius 1993:59. **(tx)** Burakowski et al. 1992:79; Lekander 1968; Pfeffer 1994c:165.

Page 491 ***avulsus*** (Eichhoff). Add:
REFERENCES: **(bv)** Dickens, Billings, & Payne 1992; Flamm, Pulley, & Coulson 1993; Kohnle et al. 1994; Lewis & Cane 1990a; Smith, Payne, & Birch 1990; Smith, Salom, & Payne 1993. **(cn)** Anonymous 1994b:23; Arnold & Jiracek 1982; Fredericksen, Hedden, & Williams 1993. **(ds)** Atkinson & Peck 1994:320; **(ec)** Bickel 1985; Flamm, Pulley, & Coulson 1993. **(hb)** Arnold & Jiracek 1982; Atkinson & Peck 1994:320; Weber & McPherson 1991. **(ms)** Eikenbary, Pinkston, & Arnold 1994; Mori & Takikawa 1991; Skirkevicius 1993:59. **(tx)** Arnold & Jiracek 1982; Lewis & Cane 1990a.

Page 492 ***bonanseai*** (Hopkins). Add:
FIGURES: Correa López et al. 1992:56 (aedeagus).
REFERENCES: **(an)** Correa et al. 1992:54.

Page 493 ***borealis*** Swaine. Add:
REFERENCES: **(ds)** Laplante et al. 1991:116; Larochelle 1979:51; Schwert 1992:81,84.

Page 494 ***calligraphus*** (Germar). Add:
FIGURES: Correa et al. 1992:60 (aedeagus).
REFERENCES: **(an)** Correa et al. 1992:59. **(bv)** Bunce & McLean 1990; Flamm, Pulley, & Coulson 1993; Kohnle et al. 1994; Lewis & Cane 1990a, 1990b; Smith, Payne, & Birch 1990; Smith, Salom, & Payne 1993. **(cn)** Anonymous 1994b:23; Arnold & Jiracek 1982; Fredericksen, Hedden, & Williams 1993; Maes 1992:13. **(ds)** Atkinson & Peck 1994:320; Bain 1977b:17; Laplante et al. 1991:116; Larochelle 1979:51; Papp 1984:295; Wood, Stevens, & Lezama 1991b:289. **(ec)** Bickel 1985; Bunce & McLean 1990; Dajoz 1993; Flamm, Pulley, & Coulson 1993; Guerra et al. 1989. **(hb)** Arnold & Jiracek 1982; Atkinson & Peck 1994:320; Haack, Billings, & Richter 1990; Lapis 1986; Papp 1984:295. **(ms)** Eikenbary, Pinkston, & Arnold 1994; Mori & Takikawa 1991; Skirkevicius 1993:59. **(tx)** Arnold & Jiracek 1982; Lewis & Cane 1990a; Wood, Stevens, & Lezama 1991b:289.

Page 496 *interstitialis* Eichhoff (synonym of ***calligraphus*** (Germar)). Add:
REFERENCES: **(bv)** Valterova et al. 1991.

Page 497 ***cembrae*** (Heer). Add:
FIGURES: Pfeffer 1994c:277 (elytral declivity, antenna), 305 (gallery); Xiao 1992:627 (adult, gallery).

DISTRIBUTION: ASIA: China. EUROPE: Slovenia.
HOSTS: *Larix decidua, L. gmelinii, L. leptolepis, L. sibirica, Picea abies, P. excelsa, Pinus cembra, P. montana, P. mugo, P. pumila, P. sylvestris, Pseudotsuga menziesii.*
REFERENCES: (**an**) Zhang & Niemeyer 1992a, 1992b. (**bv**) Zhang, Byers, & Schlyter 1992a, 1992b. (**cn**) Bevan 1984a; Jung, Rohde, & Lunderstaedt 1994; Moraal 1992. (**ds**) Burakowski et al. 1992:80; O'Conner, Winter, & Good 1991:408; Pfeffer 1994c:165; Qing & Niemeyer 1992; Titovsek 1983:414; Winter 1991a; Zhang & Niemeyer 1992a, 1992b. (**ec**) Maeto et al. 1991; Yamaguchi, Sasaki, & Matsukaki 1991. (**hb**) Koch 1992:167; Nishiguchi 1960a; Zhang, Byers, & Schlyter 1992a, 1992b. (**ms**) Skirkevicius 1993:60. (**tx**) Burakowski et al. 1992:80; Pfeffer 1994c:165.

Page 499 *subelongatus* Motschulsky (synonym of ***cembrae*** (Heer)). Add:
REFERENCES: (**cn**) Girs & Yanovsky 1991; Mamaev 1990; Massel' et al. 1984; Trofimov & Lipatkin 1989. (**ds**) Siitonen 1990; Xiao 1992:627. (**ec**) Blinova, Korenchenko, & Ivanova 1990; Girs & Yanovsky 1991; Korenchenko 1990; Slobodyanyuk 1973. (**hb**) Blinova, Korenchenko, & Ivanova 1990; Kiselev & Yanovskii 1980; Yanovskii 1984. (**tx**) Xiao 1992:627.

Page 500 ***confusus*** (LeConte). Add:
FIGURES: Correa et al. 1992:60 (aedeagus).
REFERENCES: (**an**) Cane et al. 1990; Correa et al. 1992:59; Fox, Wood, & Cane 1991. (**bv**) Cane, Merrill, & Wood 1990; Cane, Wood, & Fox 1990; Fox, Wood, & Cane 1991; Lewis & Cane 1990a, 1992. (**ds**) Christensen, Whitham, & Kein 1992; Papp 1984:297. (**ec**) Fox, Wood, & Cane 1991; Lewis & Cane 1990b. (**hb**) Christensen, Whitham, & Kein 1992; Merrill, Wood, & Cane 1988; Papp 1984:297. (**ms**) Skirkevicius 1993:60. (**tx**) Cane et al. 1990; Lewis & Cane 1990a.

Page 502 ***duplicatus*** (Sahlberg). Add:
FIGURES: Lekander 1968:181 (larval characters); Pfeffer 1994c:277 (antenna), 298 (elytral declivity), 302 (gallery); Xiao 1992:620 (adult); Yin, Huang, & Li 1984:130; Xiao 1992:620 (adult).
DISTRIBUTION: ASIA: China.
HOSTS: *Picea abies, P. jezoensis, P. obovata, Pinus cembra, P. sibirica, P. sylvestris.*
REFERENCES: (**an**) Lekander 1968:93. (**bv**) Byers et al. 1990b; Ivarsson, Schlyter, & Birgersson 1993; Schlyter & Anderbrandt 1993; Schlyter et al. 1992; Yakaitis 1988. (**cn**) Kolk 1992. (**ds**) Balazy & Michalski 1962a:206; Burakowski et al. 1992:81; Michalski & Ratajczak 1994; Pfeffer 1994c:163,164; Siitonen 1990; Winter 1991a; Xiao 1992:620. (**ec**) Michalski & Ratajczak 1994; Michalski, Kaczmarek, & Ratajczak 1992b:144; Schlyter & Anderbrandt 1993. (**hb**) Balazy & Michalski 1962a:206; Koch 1992:167. (**ms**) Skirkevicius 1993:60. (**tx**) Burakowski et al. 1992:81; Lekander 1968; Pfeffer 1994c:163,164; Xiao 1992:620.

Page 503 ***emarginatus*** (LeConte). Add:
FIGURES: Correa et al. 1992:56 (aedeagus).
REFERENCES: (**an**) Correa et al. 1992:54. (**ec**) Dajoz 1993.

Page 504 ***erosus*** (Wollaston). Move to ***Orthotomicus***.

Page 506 ***grandicollis*** (Eichhoff). Add:

FIGURES: Correa et al. 1992:58 (aedeagus); Zimmerman 1992:627 (adult).

REFERENCES: (**an**) Cane et al. 1990; Correa et al. 1992:57. (**bv**) Ascoli-Christensen, Salom, & Payne 1993; Dickens, Billings, & Payne 1992; Flamm, Pulley, & Coulson 1993; Kohnle et al. 1994; Lewis & Cane 1990a; Smith, Payne, & Birch 1990; Smith, Salom, & Payne 1993. (**cn**) Abbott 1993; Anonymous 1994b:23; Arnold & Jiracek 1982; Berisford 1991; Cook & Hain 1992a; Eldridge & Simpson 1987; Fredericksen, Hedden, & Williams 1993; Lawson & Morgan 1992; Maes 1992:13; Nord, Hastings, & Jones 1990; Stone 1990; Stone & Simpson 1991a. (**ds**) Ascoli-Christensen, Salom, & Payne 1993; Atkinson & Peck 1994:320; Bain 1977b:17; Fuentes, Zayas, & Viamontes 1992; Laplante et al. 1991:116; Larochelle 1979:51; Wood, Stevens, & Lezama 1991b:289. (**ec**) Abbott 1993; Bickel 1985; Cook, Hain, & Nappen 1990; Flamm, Pulley, & Coulson 1993; Grissell 1983; Guerra et al. 1989; Lawson 1993; Lawson & Morgan 1993; Stone 1993; Stone & Simpson 1990, 1991b. (**hb**) Arnold & Jiracek 1982; Atkinson & Peck 1994:320; Cook & Hain 1992a:167, 1992b; Cook, Hian, & Nappen 1990; Garraway & Freeman 1990; Weber & McPherson 1991. (**ms**) Eikenbary, Pinkston, & Arnold 1994; Skirkevicius 1993:60. (**tx**) Arnold & Jiracek 1982; Cane et al. 1990; Lewis & Cane 1990a; Naumann 1993:160; Wood, Stevens, & Lezama 1991b:289.

Page 508 *cribricollis* Eichhoff (synonym of ***grandicollis*** (Eichhoff)). Add:

REFERENCES: (**bv**) Bunce & McLean 1990. (**ec**) Bunce & McLean 1990.

Page 509 ***hauseri*** Reitter. Add:

FIGURES: Xiao 1992:622 (adult, immature stages, gallery).

DISTRIBUTION: ASIA: Kazakhstan, Kyrgyzstan, Tajikistan.

REFERENCES: (**cn**) Trofimov & Lipatkin 1989. (**ds**) Pfeffer 1994c:163,164; Xiao 1992:622. (**tx**) Pfeffer 1994c:163,164; Xiao 1992:622.

Page 509 ***hoppingi*** Lanier. Add:

HOSTS: *Pinus discolor, P. remorata.*

REFERENCES: (**an**) Cane et al. 1990. (**bv**) Cane, Merrill, & Wood 1990; Lewis & Cane 1992. (**hb**) Merrill, Wood, & Cane 1988. (**tx**) Cane et al. 1990.

Page 509 ***integer*** (Eichhoff). Add:

FIGURES: Correa et al. 1992:58 (aedeagus).

REFERENCES: (**an**) Correa et al. 1992:55.

Page 510 ***latidens*** (LeConte). Add:

REFERENCES: (**bv**) Borden, Devlin, & Miller 1992; Miller & Borden 1990b,1992; Miller et al. 1991. (**ds**) Laplante et al. 1991:116; Larochelle 1979:51; Parsons et al. 1991:59; Schwert 1992:81,84; Winter 1991a. (**ec**) Ayer & Nozawa 1990; Dajoz 1993; Miller & Borden 1992. (**ms**) Skirkevicius 1993:60.

Page 511 ***longidens*** Swaine (synonym of ***latidens*** (LeConte)). Add:
REFERENCES: **(ds)** Dearborn & Donahue 1993:81.

Page 511 ***lecontei*** Swaine. Add:
FIGURES: Correa et al. 1992:60 (aedeagus).
REFERENCES: **(an)** Cane et al. 1990; Correa et al. 1992:59. **(bv)** Cane, Wood, & Fox 1990; Lewis & Cane 1992. **(cn)** Parker 1991. **(tx)** Cane et al. 1990.

Page 511 ***longifolia*** (Stebbing). Add:
DISTRIBUTION: ASIA: Bhutan, Pakistan.
HOSTS: *Picea spinulosa, Pinus excelsa, P. wallichiana.*
REFERENCES: **(cn)** Chhetri 1991. **(ds)** Chhetri 1991.

Page 512 ***mannsfeldi*** (Wachtl). Add:
FIGURES: Li, Shi, & Ao 1984:267 (adult, gallery).
DISTRIBUTION: EUROPE: Greece.
HOSTS: *Pinus nigra, P. nigra austriaca, P. nigra banatica, P. nigra laricio, P. nigra pallasiana.*
REFERENCES: **(bv)** Kohnle et al. 1993. **(ds)** Li, Shi, & Ao 1984: 267; Pfeffer 1994c:162; Schedl 1967c:72, 1971d:431. **(hb)** Koch 1992:167; Li, Shi, & Ao 1984:267; Pfeffer 1994c:162.

Page 512 ***mexicanus*** (Hopkins). Add:
FIGURES: Correa et al. 1992:56 (aedeagus).
REFERENCES: **(an)** Correa et al. 1992:55. **(bv)** Fox, Wood, & Koehler 1990. **(ds)** Papp 1984:297. **(ec)** Fox et al. 1991, 1992a:157; Storer & Dallara 1992; Storer et al. 1994; Wood et al. 1992:10. **(hb)** Fox, Wood, & Koehler 1990; Papp 1984:297. **(tx)** Wood et al. 1992:10.

Page 514 ***nitidus*** Eggers. Add:
FIGURES: Xiao 1992:624 (adult, immature stages, gallery).
REFERENCES: **(ds)** Xiao 1992:623. **(tx)** Xiao 1992:623.

Page 514 ***nobilis*** (Wollaston). Add:
REFERENCES: **(ds)** Israelson 1968:155. **(tx)** Israelson 1968:155.

Page 514 ***paraconfusus*** Lanier. Add:
HOSTS: *Pinus radiata, P. torreyana.*
REFERENCES: **(an)** Cane et al. 1990; Fox, Wood, & Cane 1991. **(bv)** Akers, Preisler, & Wood 1993; Byers & Birgersson 1990; Cane, Wood, & Fox 1990; Fox, Wood, & Cane 1991; Fox, Wood, & Koehler 1990; Kohnle et al. 1994; Lewis & Cane 1992; Paine & Hanlon 1991; Seybold 1993; Trost & Rodriguez 1992; Vanderwel 1994. **(cn)** Berson 1992. **(ec)** Bickel 1985 (as *confusus*); Fox, Wood, & Cane 1991; Fox et al. 1991, 1992a:157, 1992b; Storer & Dallara 1992. **(hb)** Fox, Wood, & Koehler 1990; Fox et al. 1992b. **(ms)** Mori & Takikawa 1991; Skirkevicius 1993:60. **(tx)** Cane et al. 1990.

Page 515 ***perroti*** Swaine. Add:
REFERENCES: **(ds)** Laplante et al. 1991:116; Larochelle 1979:51. **(ec)** Tomalak, Welch, & Galloway 1990.

Page 515 ***perturbatus*** (Eichhoff). Add:
FIGURES: Ives & Wong 1988:80.

REFERENCES: (**an**) Lanier & Kirkendall 1986:87 (**bv**) Werner 1993. (**cn**) Anonymous 1985; Hofacker, Loomis & Gilstrap 1988:88; Hofacker, Loomis & Tucker 1987; Hofacker et al. 1989; Kondo & Taylor 1985:32; Loomis, Hofacker & Tucker 1985:80, 1986; Syme & Nystrom 1988:58; Werner 1988; Wood & Van Sickle 1987:21; Wood, Van Sickle, & Shore 1985:16. (**ds**) Ashworth & Cvancara 1983; Laplante et al. 1991:116; Larochelle 1979:51; Schedl 1969a:203; Syme & Nystrom 1988:58. (**ec**) Bickel 1985; Tomalak, Welch, & Galloway 1990; Triplehorn 1990. (**hb**) Ives & Wong 1988:81. (**tx**) Syme & Nystrom 1988:58.

Page 517 ***pilifrons utahensis*** Wood. Add:

REFERENCES: (**ec**) Bickel 1985.

Page 517 ***pini*** (Say). Add:

FIGURES: Correa et al. 1992: 58 (aedeagus); McGauley & Kirby 1991:45 (gallery).

REFERENCES: (**an**) Correa et al. 1992:57; Faucheux 1994; Gast & Stock 1994; Gries et al. 1990a; Haack et al. 1992. (**bv**) Amman & Ryan 1991; Borden, Devlin, & Miller 1992; Devlin & Borden 1994; Gast, Stock, & Furniss 1993; Gries et al. 1990a; Hager & Teale 1994; Hayes & Strom 1994; Herms, Haack, & Ayers 1991a, 1991b; Herms et al. 1993; Klepzig, Raffa, & Smalley 1993; Krause & Raffa 1994; Miller & Borden 1990a, 1992; Miller, Gries, & Borden 1990; Poland & Borden 1994b; Raffa 1991a, 1991b; Safranyik & Linton 1991; Seybold 1993; Seybold, Nomura, & Wood 1991; Seybold et al. 1992a, 1992b; Teale & Lanier 1991; Teale, Hager, & Webster 1994; Teale et al. 1991, 1992:170. (**cn**) Anonymous 1994b:23; Devlin & Borden 1994; Hessburg, Mitchell, & Filip 1994:19,26,35; Klepzig, Raffa, & Smalley 1992:161; Littke 1992:105; McGauley & Kirby 1991:45; Miller, Devlin, & Borden 1994; Parker 1991. (**ds**) Bain 1977b:18; Carvalho 1994:274; Dearborn & Donahue 1993:81; Laplante et al. 1991:116; Larochelle 1979:51; Papp 1984:297; Parsons et al. 1991:59; Winter 1991a. (**ec**) Bickel 1985; Dajoz 1993; Haack et al. 1992; Herms, Haack, & Ayers 1991a, 1991b; Klepzig, Raffa, & Smalley 1991, 1992:161; Miller & Borden 1992; Nevill & Alexander 1992a, 1992b; O'Connor 1990; Poland & Borden 1994a; Raffa 1991a, 1991b; Raffa & Dahlsten 1993; Raffa, Klepzig, & Smalley 1992:154; Rankin & Borden 1991; Safranyik & Linton 1991; Senger & Roitberg 1992; Seybold et al. 1992a, 1992b; Triplehorn 1990:304. (**hb**) McGauley & Kirby 1991:45; Papp 1984:297; Reid & Roitberg 1994; Teale, Hager, & Webster 1994; Weber & McPherson 1991. (**ms**) Fitzgerald 1990; Mori & Takikawa 1991; Skirkevicius 1993:60.

Page 521 ***plastographus plastographus*** (LeConte). Add:

REFERENCES: (**bv**) Fox, Wood, & Koehler 1990. (**ds**) Papp 1984:297. (**ec**) Storer & Dallara 1992; Storer et al. 1994. (**hb**) Fox, Wood, & Koehler 1990; Papp 1984:297.

Page 522 ***robustus*** (Knotek). Move to ***Orthotomicus***.

Page 522 ***sexdentatus*** (Boerner). Add:

FIGURES: Faucheux 1989 (antennal club setae); Joly 1977:9 (gallery); Lekander 1968:179 (larval characters); Lévieux & Cassier

1994:27 (mycangia); Lévieux et al. 1991 (mycangia); Li, Dang, & Shi 1977:190 (adult, gallery); Lombardero 1994:290, Plate 6 (adult features, aedeagus, gallery); Pfeffer 1994c:277 (elytral declivity); Xiao 1992:625 (adult), 626 (gallery).

DISTRIBUTION: ASIA: China. EUROPE: S. Russia (Caucasus), Ukraine, Wales.

HOSTS: *Picea excelsa, P. orientalis, Pinus brutia, P. halepensis, P. khasya, P. koraiensis, P. leucodermis, P. merkusii, P. nigra, P. nigra austriaca, P. nigra balcanica, P. nigra banatica, P. nigra pallasiana, P. pinaster, P. radiata, P. sibirica, P. sylvestris, Pseudotsuga menziesii.*

REFERENCES: (**an**) Faucheux 1989; Lekander 1968:91; Lévieux & Cassier 1994; Lévieux et al. 1991. (**bv**) Bouhot et al. 1992; Colineau & Lieutier 1994; Delorme & Lieutier 1990; Kohnle, Meyer & Kluber 1992; Lieutier, Faure, & Garcia 1988; Malphettes & Saintonge 1991. (**cn**) Cobos-Suarez & Ruiz-Urrestarazu 1990; Delorme & Lieutier 1990; Goix 1977; Karadzic, Knezevic, & Mihajlovic 1990:198; Kohnle et al. 1992a; Lieutier 1990a, 1992; Malphettes & Saintonge 1991; Podgornyi et al. 1988; Svestka 1991; Trofimov & Lipatkin 1989; Zach 1991. (**ds**) Balazuc 1984:310; Balazy & Michalski 1962a:205; Burakowski et al. 1992:82; Fernandez Fernandez 1992:526; Gillerfors 1988:43,45; Gogniat 1991:25; Hutacharern et al. 1988:46; Lombardero 1994:289; Michalski & Ratajczak 1994; Nilssen 1993; O'Conner, Winter, & Good 1991:408; Pfeffer 1994c:161; Schott 1986:58; Siitonen 1990; Titovsek 1983:414; Winter 1991a; Xiao 1992:625. (**ec**) Colineau & Lieutier 1994; Croisé & Lieutier 1993; Dajoz 1990; Delorme & Lieutier 1990; Kal'vish 1974; Korenchenko 1990; Lévieux & Cassier 1994; Lévieux et al. 1991; Lieutier, Cheniclet, & Garcia 1989; Lieutier et al. 1990, 1991a, 1993; Löyttyniemi & Uusvaara 1977; Markalas 1991:74; Michalski & Ratajczak 1994; Nilssen 1993; Podgornyi et al. 1988; Trojan et al. 1994:91; Voslilite 1975;1990. (**hb**) Balazy & Michalski 1962a:205; Bouhot et al. 1992; Goix 1977; Jactel 1991b, 1993; Jactel & Gaillard 1991; Koch 1992:168; Lombardero 1994:289; Osipenko 1985. (**ms**) Kohnle, Meyer, & Kluber 1992; Skirkevicius 1993:60. (**tx**) Burakowski et al. 1992:82; Cavey, Passoa, & Kucera 1994:11; Lekander 1968; Lombardero 1994:289; Pfeffer 1994c:161; Xiao 1992:625.

Page 526 ***stebbingi*** Strohmeyer. Add:
HOSTS: *Picea spinulosa, Pinus wallichiana.*
REFERENCES: (**cn**) Chhetri 1991. (**ds**) Chhetri 1991.

Page 527 *schmutzenhoferi* Holzschuh (synonym of ***stebbingi*** Strohmeyer). Add:
REFERENCES: (**bv**) Eidmann & Birgersson 1988; Franke et al. 1988; Kohnle et al. 1988. (**hb**) Eidmann & Wiersma 1989.

Page 527 ***tridens*** (Mannerheim). Add:
REFERENCES: (**ec**) Bickel 1985.

Page 528 ***typographus*** (Linnaeus). Add:
FIGURES: Bevan 1987:113; Cavey & Passoa 1993 (adult); Faucheux 1989 (antennal club setae); Joly 1977:9,10 (gallery); Lekander 1968:179,180; Li, Shi, & Ao 1984:266 (adult, gallery);

Pfeffer 1994c:298 (elytral declivity, adult); Yin, Huang, & Li 1984:131; Xiao 1992:628 (adult, gallery).

DISTRIBUTION: ASIA: China. EUROPE: Ireland.

HOSTS: *Abies pectinata, A. sibirica, Larix decidua, Picea abies, P. excelsa, P. jezoensis, P. obovata, P. omorica, P. sitchensis, Pinus cembra, P. koraiensis, P. sibirica, P. sylvestris.*

REFERENCES: **(an)** Faucheux 1989; Francke et el 1989; Hallberg 1993; Lekander 1968:92; Lévieux & Cassier 1994; Nef 1990b; Nemec, Zumr, & Stary 1993; Roth-Holzapfel & Funke 1990; Simsek & Führer 1993; Stauffer, Leitinger, & Führer 1992:22; Stauffer et al. 1992. **(bv)** Baader & Vité 1990; Bakke 1991b; Bichevskis 1989; Bombosch 1991; Byers 1993a, 1993b, 1993c; Cheskis et al. 1991; Francke et al. 1989; Führer, Hausmann, & Wiener 1991, 1993; Führer, Wiener, & Hausmann 1992; Kohnle et al. 1991; Kretschmer 1990a; Lindelow, Risberg, & Sjodin 1992; Lobinger 1994; Nef 1990b; Nemec, Zumr, & Stary 1993; Otte 1989:239; Ozols, Bichevskis, & Menniks 1989a; Paynter, Anderbrant, & Schlyter 1990; Rauhut, Schmidt, & Schmidt 1993; Schlyter 1992; Schlyter & Anderbrandt 1993; Schlyter et al. 1992; Wegensteiner & Führer 1991; Yakaitis 1988; Zolubas 1988; Zolubas & Skirkevicius 1993; Zuber & Benz 1992; Zumr 1990a, 1990b, 1991, 1992a. **(cn)** Adlung, Schicke, & O'Svath 1986; Ambrosi, Angheben, & Salvadori 1990; Baader & Vité 1990; Bakke 1991a, 1991b; Bakke, Saether, & Kvamme 1983; Bathon 1991; Bombosch & Dedek 1994; Busch 1990; Byers 1992b, 1993b; Cavey & Passoa 1993; Christiansen 1991; Dedek & Pape 1990; Dedek, Pape, & Körner 1991; Dimitri et al. 1992; Drumont et al. 1991, 1992; Eidmann, Lindelow, & Solbreck 1992; Fielding et al. 1994; Forster 1993; Fudula 1984; Furuta et al. 1994; Gotze et al. 1985; Hanke 1991; Hubertz, Larsen, & Bejer 1991; Klimetzek & Schlenstedt 1991; Kohnle et al. 1992a, 1992b; Kolk 1992; Kretschmer 1991; Krol & Bakke 1986; Kula 1992; Lebedev 1991; Lekander 1952; Lie, Garner, & Harvey 1984; Lozzia 1993; M 1948; Luitjes 1977; Merker 1949; Mohring 1983; Moraal 1992; Moor 1987; Nakayama et al. 1991; Nef 1990b; Niemeyer 1989, 1992; Niemeyer, Watzek, & Vaupel 1982; Nihoul & Nef 1992; Ozols, Bichevskis, & Menniks 1989a, 1989b; Pavlin, Titovsek, & Kotar 1994; Pentiuc 1987; Perny 1994; Pigeon et al. 1993; Proft et al. 1992; Regnander 1976; Richter 1989, 1991; Risberg 1985b; Saarenmaa 1990; Sadovnikova & Kuteev 1983; Schlyter & Lundgren 1993; Schröter 1991; Svestka 1990; Titovsek 1993b; Trofimov & Lipatkin 1989; Vaupel 1991; Vaupel & Dubbel 1985; Vité & Baader 1991; Vitola & Ozols 1989; Wang 1983; Weslien 1992a, 1992b; Weslien & Lindelow 1990; Zach 1991. **(ds)** Bain 1977b:18; Balazy & Michalski 1962a:205; Burakowski et al. 1992:83; Gogniat 1991:25; Heliövaara, Väisänen, & Immonen 1991; Johansson, Anderson, & Nilssen 1994; Koponen & Nuorteva 1973:26; Li, Shi, & Ao 1984:48; Michalski & Ratajczak 1994; Morris 1993:296; O'Conner, Winter, & Good 1991:404,406; Ozkazanc 1985; Pfeffer 1994c:164; Richter 1989; Schott 1986:58; Siitonen 1990; Titovsek 1983:412; Whitehead 1992b:230,231; Winter 1991a; Xiao 1992:628. **(ec)** Bakke 1992,1993; Blinova, Korenchenko, & Ivanova 1990; Christiansen 1989, 1991, 1992; Christiansen & Fjone 1993; Eck 1990a, 1990b; Furniss, Solheim, & Christiansen 1990; Holling 1992;

Horntvedt et al 1983; Kinn 1991; Korenchenko 1990; Kretschmer 1990b; Kruger & Mills 1990; Lévieux & Cassier 1994; Lobinger 1994; Löyttyniemi & Uusvaara 1977; Maksymov 1977; Maslov & Matusevich 1990; Michalski & Ratajczak 1994; Michalski, Kaczmarek, & Ratajczak 1992a, 1992b:145; Mills, Krüger, & Schlup 1991; Nef 1990b; Nicolai et al. 1992; Nierhaus-Wunderwald 1992; Otte 1989:239; Ounap 1992; Pechacek & Kristin 1993; Schlyter & Anderbrandt 1993; Schlyter & Lundgren 1993; Simsek & Führer 1993; Solheim 1988, 1991, 1992a, 1992b, 1993; Starzyk 1977; Väisänen, Bistrom, & Heliövaara 1993; Weiser & Wegensteiner 1994; Weslien 1991, 1992c, 1994; Weslien & Regnander 1992; Wisniewski & Hirschmann 1990. (**hb**) Anderbrant 1990; Balazy & Michalski 1962a:205; Blinova, Korenchenko, & Ivanova 1990; Bombosch 1991; Cavey & Passoa 1993; Forsse 1991; Führer, Hausmann, & Wiener 1993; Funke & Petershagen 1991; Hubertz, Larsen, & Bejer 1991; Koch 1992:167; Li, Shi, & Ao 1984:48; Maslov & Matusevich 1990; Merker 1949; Moor 1987; Nakayama et al. 1991; Nierhaus-Wunderwald 1992; Panina 1976; Rauhut, Schmidt, & Schmidt 1993; Sadovnikova & Kuteev 1983; Schlyter 1992; Wegensteiner & Führer 1991; Weslien & Regnander 1990; Zolubas 1988; Zolubas & Skirkevicius 1993; Zumr 1992b. (**ms**) Baeckström, Li, & Koutek 1991; Skirkevicius 1993:60. (**tx**) Burakowski et al. 1992:83; Cavey, Passoa, & Kucera 1994:6; Lekander 1968; Pfeffer 1994c:164; Xiao 1992:628.

Page 538 *typographus japonicus* Niisima (synonym of ***typographus*** (Linnaeus)). Add:

REFERENCES: (**en**) Nakayama et al. 1991; Ozaki, Maeto, & Choldumrongkul 1991. (**ec**) Ishii 1939; Maeto, & Choldumrongkul 1991; Spaaij et al. 1993; Takahishi & Saho 1985. (**hb**) Nishiguchi 1960a.

TRIBE DRYOCOETINI

Page 539 **Dryocoetini** Add:

KEYS: Lombardero 1994:298 (to genera in northwest Spain); Pfeffer 1994a:164 (to Central Europe genera), 1994c:133 (to Palearctic genera).

REFERENCES: (**tx**) Lombardero 1994:298; Pfeffer 1994a:164, 1994c:133.

Page 539 *Thamnurgini* (synonym of **Dryocoetini**).

KEYS: Pfeffer 1994a:163 (to Central Europe genera), 1994c:122 (to Palearctic genera).

REFERENCES:(**tx**) Pfeffer 1994a:163, 1994c:122.

Page 539 *Taphrorychini* (synonym of **Dryocoetini**). Add:

KEYS: Pfeffer 1994a:165 (to Central Europe genera), 1994c:142 (to Palearctic genera).

REFERENCES: (**tx**) Pfeffer 1994a:165, 1994c:142.

Genus **Tiarophorus** Schreiner

Page 539 *Pseudothamnurgus* Eggers (synonym of **Tiarophorus** Schreiner). Add:

KEYS: Pfeffer 1994c:129 (to Palearctic species).

NOTES: Pfeffer 1994a:164, 1994c:129 (treats this taxon as a valid genus).
REFERENCES: (**tx**) Pfeffer 1994a:164, 1994c:129.

Page 539 ***camerunus*** (Hagedorn). Add:
DISTRIBUTION: AFRICA: Ghana.

Page 539 ***elongatus*** Schreiner. Add:
DISTRIBUTION: AFRICA: Côte d'Ivoire, Equatorial Guinea, Nigeria.
HOSTS: *Millettia* sp.
REFERENCES: (**ds**) Medler 1980:291.

Page 539 ***hyaspistis*** Schedl. Add:
DISTRIBUTION: AFRICA: Ghana.

Page 540 ***mediterraneus*** (Eggers). Add:
FIGURES: Pfeffer 1994c:275 (habitus).
NOTES: Pfeffer 1994c:130 (treated in *Pseudothamnurgus*).
REFERENCES: (**ds**) Pfeffer 1994c:130. (**tx**) Pfeffer 1994c:130.

Page 540 ***nitidicollis*** (Reitter). Add:
NOTES: Pfeffer 1994c:131 (treated in *Pseudothamnurgus*).
REFERENCES: (**ds**) Pfeffer 1994c:131. (**tx**) Pfeffer 1994c:131.

Page 540 ***normandi*** (Eggers). Add:
DISTRIBUTION: AFRICA: Tunisia. EUROPE: France.
NOTES: Pfeffer 1994c:130 (treated in *Pseudothamnurgus*).
REFERENCES: (**ds**) Pfeffer 1994c:130. (**tx**) Pfeffer 1994c:130.

Page 540 ***scrutator*** (Pandelle). Add:
FIGURES: Pfeffer 1994c:275 (frons).
HOSTS: *Carpinus betulus, Corylus avellana, Malus sylvestris, Quercus castaneifolia incana, Q. ilex.*
NOTES: Pfeffer 1994c:130 (treated in *Pseudothamnurgus*).
REFERENCES: (**ds**) Pfeffer 1994c:130. (**tx**) Pfeffer 1994c:130.

Add species: ***rossicus*** (Alexeev) 1957:157. Holotype, sex ?; Kursk. Gebiet, Zentral tschernozemn. Reservation V. V. Aljechin, Streleckaja Steppe; Moscow State University, Moscow.
DISTRIBUTION: ASIA: E. Russia.
HOSTS: *Delphinium cuneatum.*
NOTES: Omitted from 1992 catalog. Pfeffer 1994c:128 (Russian to German translation of description, treated in *Pseudothamnurgus*).
REFERENCES: (**tx**) Pfeffer 1994c:129.

Genus **Triotemnus** Wollaston

Page 540 **Triotemnus** Wollaston. Add:
KEYS: Pfeffer 1994c:131 (to Palearctic species).
REFERENCES: (**tx**) Pfeffer 1994a:163, 1994c:131.

Page 541 ***antoinei*** Peyerimhoff. Add:
REFERENCES: (**ds**) Pfeffer 1994c:132. (**tx**) Pfeffer 1994c:132.

Page 541 ***grangeri*** (Peyerimhoff). Add:
REFERENCES: (**ds**) Pfeffer 1994c:132. (**tx**) Pfeffer 1994c:132.

Page 541 ***longicollis*** Peyerimhoff. Add:
FIGURES: Pfeffer 1994c:271 (outline of adult, head).
REFERENCES: **(ds)** Pfeffer 1994c:132. **(tx)** Pfeffer 1994c:132.

Page 541 ***subretusus*** Wollaston. Add:
FIGURES: Pfeffer 1994c:271 (outline of adult).
REFERENCES: **(ds)** Pfeffer 1994c:132. **(tx)** Pfeffer 1994c:132.

Genus **Thamnurgus** Eichhoff

Page 541 **Thamnurgus** Eichhoff. Add:
KEYS: Pfeffer 1994c:124 (to Palearctic species).
REFERENCES: **(tx)** Pfeffer 1994a:163, 1994c:124.

Page 542 ***armeniacus*** Reitter. Add:
REFERENCES: **(ds)** Pfeffer 1994c:127. **(tx)** Pfeffer 1994c:127.

Page 542 ***brylinskyi*** Reitter. Add:
FIGURES: Pfeffer 1994c:269 (pronotal outline, elytral declivity).
REFERENCES: **(ds)** Pfeffer 1994c:128. **(tx)** Pfeffer 1994c:128.

Page 542 ***caucasicus*** Reitter. Add:
DISTRIBUTION: EUROPE: Bulgaria.
HOSTS: *Euphorbia amygdaloides, E. gerardiana, Peganum harmala.*
REFERENCES: **(ds)** Pfeffer 1994c:126. **(tx)** Pfeffer 1994c:126.

Page 542 ***characiae*** Rosenhauer. Add:
DISTRIBUTION: AFRICA: Tunisia. Europe: Sardinia, Sicily.
REFERENCES: **(ds)** Pfeffer 1994c:125. **(tx)** Pfeffer 1994c:125.

Page 542 ***delphinii*** (Rosenhauer). Add:
FIGURES: Pfeffer 1994c:269 (pronotal outline).
HOSTS: *Consolida orientalis, C. regalis, Delphinium orientale, Teucrium scorodonia.*
REFERENCES: **(ds)** Pfeffer 1994c:126. **(tx)** Pfeffer 1994c:126.

Page 543 ***euphorbiae*** (Küster). Add:
DISTRIBUTION: EUROPE: Sicily.
HOSTS: *Euphorbia amygdaloides, E. wulfenii.*
REFERENCES: **(ds)** Pfeffer 1994c:125. **(tx)** Pfeffer 1994c:125.

Page 544 ***kaltenbachi*** (Bach). Add:
FIGURES: Pfeffer 1994c:269 (pronotal outline, elytral declivity).
DISTRIBUTION: EUROPE: Croatia.
HOSTS: *Origanum officinalis, Stachys officinalis.*
REFERENCES: **(ds)** Burakowski et al. 1992:84; Pfeffer 1994c:128; Schott 1986:57. **(hb)** Koch 1992:159. **(tx)** Burakowski et al. 1992: 84; Pfeffer 1994c:128.

Page 544 ***mairei*** Peyerimhoff. Add:
DISTRIBUTION: AFRICA: Morocco.
REFERENCES: **(ds)** Pfeffer 1994c:126. **(tx)** Pfeffer 1994c:126.

Page 545 ***orientalis*** Schedl. Add:
NOTES: Pfeffer 1994c:129 (repeats description, treated in *Pseudothamnurgus*).

REFERENCES: **(tx)** Pfeffer 1994c:129.

Page 545 ***pegani*** Eggers. Add:

HOSTS: Roots of *Peganum* sp.

REFERENCES: **(tx)** Aksent'ev 1991.

Page 545 ***petzi*** Reitter. Add:

FIGURES: Pfeffer 1994c:269 (pronotal outline).

DISTRIBUTION: EUROPE: Moldavia.

HOSTS: *Aconitum cammarum.*

REFERENCES: **(ds)** Pfeffer 1994c:127. **(hb)** Koch 1992:159. **(tx)** Pfeffer 1994c:127.

Page 546 ***varipes*** Eichhoff. Add:

FIGURES: Pfeffer 1994c:269 (pronotal outline, elytral declivity).

DISTRIBUTION: EUROPE: Germany.

REFERENCES: **(ds)** Balazuc 1984:309; Burakowski et al. 1992:85; Pfeffer 1994c:125. **(hb)** Koch 1992:159. **(tx)** Burakowski et al. 1992:85; Pfeffer 1994c:125.

Genus **Taphronurgus** Reitter

Page 546 **Taphronurgus** Reitter. Add:

REFERENCES: **(tx)** Pfeffer 1994a:164, 1994c:133.

Page 546 ***exul*** (Reitter). Add:

FIGURES: Pfeffer 1994c:270 (adult features).

REFERENCES: **(ds)** Pfeffer 1994c:133. **(hb)** Kostin 1960:132. **(tx)** Pfeffer 1994c:133.

Genus **Xylocleptes** Ferrari

Page 547 **Xylocleptes** Ferrari. Add:

KEYS: Pfeffer 1994c:140 (to Palearctic species).

REFERENCES: Pfeffer 1994a:165, 1994c:140.

Page 547 ***bispinus*** (Duftschmidt). Add:

FIGURES: Pfeffer 1994c:276 (antenna), 285 (elytral declivity).

DISTRIBUTION: EUROPE: Switzerland.

REFERENCES: **(ds)** Burakowski et al. 1992:85; Gogniat 1991:25; Pfeffer 1994c:141,142; Schott 1986:57; Titovsek 1983:401. **(hb)** Koch 1992:159. **(tx)** Burakowski et al. 1992:85; Pfeffer 1994c:141,142.

Page 547 ***bicuspis*** Reitter. Add:

REFERENCES: **(ds)** Pfeffer 1994c:141. **(tx)** Pfeffer 1994c:141.

Page 549 ***biuncus*** Reitter. Add:

DISTRIBUTION: EUROPE: France.

REFERENCES: **(ds)** Pfeffer 1994c:141,142. **(tx)** Pfeffer 1994c:141,142.

Genus **Dendrocranulus** Schedl

Page 550 **Dendrocranulus** Schedl. Add:

KEYS: Wood, Stevens, & Lezama 1991b:290 (to Costa Rican species).

Page 550 ***carbonarius*** (Ferrari). Add:
REFERENCES: **(ds)** Atkinson & Peck 1994:321. **(hb)** Atkinson & Peck 1994:321.

Page 551 ***confinis*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:291. **(tx)** Wood, Stevens, & Lezama 1991b:291.

Page 551 ***costaricensis*** Schedl. Add:
HOSTS: Cucurbitaceae.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:290. **(tx)** Wood, Stevens, & Lezama 1991b:290.

Page 551 ***cucurbitae*** (Leconte). Add:
DISTRIBUTION: NORTH AMERICA: United States (**Texas**).

Page 551 ***declivis*** Schedl. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Veracruz**).
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:291. **(tx)** Wood, Stevens, & Lezama 1991b:291.

Page 551 ***diversus*** Wood. Add:
HOSTS: Cucurbitaceae.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:291. **(tx)** Wood, Stevens, & Lezama 1991b:291.

Page 551 ***fulgidus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:290. **(tx)** Wood, Stevens, & Lezama 1991b:290.

Page 551 ***gracilis*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Michoacán**).

Page 552 ***limus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:290. **(tx)** Wood, Stevens, & Lezama 1991b:290.

Page 552 ***macilentus*** (Blandford). Add:
HOSTS: Cucurbitaceae.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:463; Wood, Stevens, & Lezama 1991b:291. **(hb)** Noguera-Martinez & Atkinson 1990:463. **(tx)** Wood, Stevens, & Lezama 1991b:291.

Page 552 ***maurus*** (Blandford). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Oaxaca**).

Page 552 ***mexicanus*** Wood. Add:
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:463. **(hb)** Noguera-Martinez & Atkinson 1990:463.

Page 553 ***pumilus*** Wood. Add:
HOSTS: Cucurbitaceae.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:290. **(tx)** Wood, Stevens, & Lezama 1991b:290.

Page 553 ***schedli*** Wood. Add:
HOSTS: Cucurbitaceae.

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:290. **(tx)** Wood, Stevens, & Lezama 1991b:290.

Page 553 ***securus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:290. **(tx)** Wood, Stevens, & Lezama 1991b:290.

Page 553 ***tardulus*** Wood. Add:
HOSTS: *Cayaponia macrodonta*.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:290. **(tx)** Wood, Stevens, & Lezama 1991b:290.

Page 553 ***tardus*** Schedl. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:290. **(tx)** Wood, Stevens, & Lezama 1991b:290.

Page 554 ***vicinalis*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: **Jamaica**.
HOSTS: Cucurbitaceae.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:290. **(tx)** Wood, Stevens, & Lezama 1991b:290.

Page 554 ***vicinus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:290. **(tx)** Wood, Stevens, & Lezama 1991b:290.

Page 554 ***vinealis*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Oaxaca**).
HOSTS: Cucurbit vine.

Genus **Dactylotrypes** Eggers

Page 554 **Dactylotrypes** Eggers. Add:
REFERENCES: **(tx)** Lombardero 1994:300; Pfeffer 1994c:139.

Page 554 ***longicollis*** (Wollaston). Add:
FIGURES: Lombardero 1994:302, Plate 6 (adult features, aedeagus, damage).
DISTRIBUTION: EUROPE: Italy, Spain.
HOSTS: *Phoenix dactylifera*.
REFERENCES: **(cn)** Bernabò 1991. **(ds)** Bernabò 1991; Lombardero 1994:300; Lombardero & Novoa 1994; Schedl 1963e:155. **(hb)** Lombardero 1994:300; Pfeffer 1994c:139. **(tx)** Lombardero 1994:300; Pfeffer 1994c:139.

Page 554 *uyttenboogaarti* Eggers (synonym of ***longicollis*** (Wollaston)). Add:
REFERENCES: **(cn)** Sampo & Olmi 1975. **(ds)** Sampo & Olmi 1975.

Genus **Lymantor** Lovendal

Page 554 **Lymantor** Lovendal. Add:
KEYS: Pfeffer 1994c:139 (to Palearctic species).
REFERENCES: **(tx)** Pfeffer 1994a:165, 1994c:139.

Page 554 ***aceris*** (Lindemann). Add:
FIGURES: Aksent'yev 1992(1993):128.

DISTRIBUTION: EUROPE: Austria, Latvia, Lithuania, Switzerland.
HOSTS: *Cotoneaster* sp., *Frangula alnus, Padus avium, Prunus padus, Rhamnus cathartica, R. frangula.*
NOTES: Pfeffer 1994c:140 (recognizes two subspecies, *aceris* and *schabliovskii*).
REFERENCES: **(an)** Aksent'yev 1992(1993):129. **(bv)** Rauhut, Schmidt, & Schmidt 1993. **(ds)** Burakowski et al. 1992:86; Pfeffer 1994c:140; Schedl 1981b:68; Schott & Callot 1994:67. **(hb)** Aksent'yev 1992(1993):129; Koch 1992:158. **(tx)** Burakowski et al. 1992:86; Michalski 1969b:568; Pfeffer 1994c:140; Schedl 1981b:68.

aceris aceris (Lindemann). Add:
FIGURES: Pfeffer 1994c:275 (elytral declivity).
REFERENCES: **(ds)** Pfeffer 1994c:140. **(tx)** Pfeffer 1994c:140.

aceris schabliovskii Stark. Add:
DISTRIBUTION: ASIA: E. Russia (Siberia, Ussuri).
HOSTS: *Padus avium.*
NOTES: Described as a variety, therefore valid as a subspecies, not "no status" as stated in 1992 catalog).
REFERENCES: **(ds)** Pfeffer 1994c:140. **(tx)** Pfeffer 1994c:140.

Page 555 ***coryli*** (Perris). Add:
FIGURES: Lekander 1968:173 (larval characters); Pfeffer 1994c:275 (elytral declivity, habitus), 308 (gallery).
HOSTS: *Acer pseudoplanatus, A.* sp., *Carpinus* sp., *Diaporthe nigricolor, Fagus* sp., *Frangula alnus, Juglans regia, Prunus* sp., *Pyrus* sp., *Salix* sp., *Ulmus campestre, U.* sp.
REFERENCES: **(an)** Lekander 1968:79. **(ds)** Burakowski et al. 1992:87; Hansen et al. 1993:111; Pfeffer 1994c:140; Schedl 1981b:67. **(ec)** Pfeffer 1994c:140. **(hb)** Koch 1992:158. **(ms)** Hansen et al. 1993:111. **(tx)** Schedl 1981b:67; Burakowski et al. 1992:87; Lekander 1968; Pfeffer 1994c:140.

Page 556 ***decipiens*** (LeConte). Add:
DISTRIBUTION: UNITED STATES (**Ohio**).
REFERENCES: **(cn)** Campbell, Sarazin, & Lyons 1989:369. **(ds)** Campbell, Sarazin, & Lyons 1989:369; Laplante et al. 1991:116; Larochelle 1979:50.

Genus **Taphrorychus** Eichhoff

Page 556 **Taphrorychus** Eichhoff. Add:
KEYS: Lombardero 1994:304 (to species in northwest Spain); Pfeffer 1994c:146 (to Palearctic species).
REFERENCES: **(ds)** Carpenter 1992:317. **(tx)** Lombardero 1994: 304; Pfeffer 1994a:166, 1994c:146.

Page 556 *Saliciphilus* Sokanovsky (synonym of **Taphrorychus** Eichhoff). Add:
KEYS: Pfeffer 1994c:143 (to Palearctic species).
REFERENCES: **(tx)** Pfeffer 1994c:143.

Page 557 *Taphrocoetes* Pfeffer (synonym of **Taphrorychus** Eichhoff). Add:
KEYS: Pfeffer 1994c:144 (to Palearctic species).
NOTES: Correct spelling for *Taphrocoetess* in 1992 Catalog
REFERENCES: **(tx)** Pfeffer 1994a:166, 1994c:144.

Page 557 ***alni*** Pfeffer. Add:

REFERENCES: **(ds)** Pfeffer 1994c:147,148. **(tx)** Pfeffer 1994c:147,148.

Page 557 ***bicolor*** (Herbst). Add:

FIGURES: Lekander 1968:173 (larval characters); Lombardero 1994:306, Plate 6 (adult features, aedeagus, gallery); Pfeffer 1994c:287,288 (elytral declivity), 307 (gallery).

DISTRIBUTION: EUROPE: Portugal, United Kingdom.

HOSTS: *Acer pseudoplatanus, Alnus incana, Betula verrucosa, Carpinus betulus, C. orientalis, Corylus avellana, Juglans regia, Populus tremula, Quercus petraea, Q. robur, Q.* sp.

REFERENCES: **(an)** Lekander 1968:77. **(cn)** Hyman 1992:402; Schönherr, Krautwurst, & Rossler 1983. **(ds)** Balazy & Michalski 1962a:203; Burakowski et al. 1992:87; Copestake 1994:169; Gogniat 1991:25; Hyman 1992:402; Jószef 1992; Lombardero 1994:305; Michalski & Ratajczak 1994; Owen 1993:160; Pfeffer 1994c:146, 148; Schott 1986:58; Titovsek 1983:406. **(ec)** Dippel 1991; Eckloff & Ziegler 1991; Hyman 1992:402; Michalski & Ratajczak 1994. **(hb)** Balazy & Michalski 1962a:203; Koch 1992:164; Owen 1993. **(tx)** Burakowski et al. 1992:87; Lekander 1968; Lombardero 1994: 305; Pfeffer 1994c:146,148.

Page 558 *siculus* Eggers (synonym of ***bicolor*** (Herbst)). Add:

NOTES: Pfeffer 1994c:147 (treated as a valid species).

REFERENCES: **(ds)** Pfeffer 1994c:147,148. **(tx)** Pfeffer 1994c: 147,148.

Page 559 ***ceratoniae*** Peyerimhoff. Add:

NOTES: Pfeffer 1994c:145 (treated in *Taphrocoetes*).

REFERENCES: **(ds)** Pfeffer 1994c:145. **(tx)** Pfeffer 1994c:145.

Page 559 *cribripennis* Eggers (synonym of ***ceratoniae*** Peyerimhoff). Add:

NOTES: Pfeffer 1994c:148 (repeats original description).

REFERENCES: **(tx)** Pfeffer 1994c:148.

Page 559 ***hirtellus*** Eichhoff. Add:

FIGURES: Pfeffer 1994c:287,288 (elytral declivity).

HOSTS: *Castanea vesca, Quercus frainetto, Q. sessiliflora.*

NOTES: Pfeffer 1994c:145 (treated in *Taphrocoetes*).

REFERENCES: **(ds)** Pfeffer 1994c:145. **(hb)** Koch 1992:164. **(tx)** Pfeffer 1994a:171, 1994c:145.

Page 559 ***lenkoranus*** Reitter. Add:

FIGURES: Aksent'yev 1992(1993):128 (larval characters).

HOSTS: *Fagus macrophylla, Fraxinus* sp., *Quercus castaneifolia,* Q. sp.

REFERENCES: **(an)** Aksent'yev 1992(1993):129. **(ds)** Aksent'yev 1992(1993):129; Pfeffer 1994c:147,148. **(hb)** Aksent'yev 1992(1993):129. **(tx)** Pfeffer 1994c:147,148.

Page 559 ***machnovskii*** (Sokanovsky). Add:

FIGURES: Pfeffer 1994c:310 (gallery)

NOTES: Pfeffer 1994c:144 (treated in *Saliciphilus*).

REFERENCES: **(ds)** Pfeffer 1994c:144. **(tx)** Pfeffer 1994c:144.

Page 560 ***minor*** Eggers. Add:
NOTES: Pfeffer 1994c:145 (treated in *Taphrocoetes*).
REFERENCES: **(ds)** Pfeffer 1994c:145. **(tx)** Pfeffer 1994c:145.

Page 560 ***villifrons*** (Dufour). Add:
FIGURES: Lombardero 1994:314, Plate 6 (adult features, aedeagus, gallery); Pfeffer 1994c:287,288 (elytral declivity).
DISTRIBUTION: EUROPE: Macedonia, Switzerland, Ukraine.
HOSTS: *Acer campestre, Alnus glutinosa, Betula celtiberica, Betula* sp., *Carpinus orientalis, Castanea sativa, Corylus avellana, Fagus sylvatica, Fraxinus excelsior, Pinus sylvestris, Prunus avium, P. persica, Pyrus pyraster, Quercus canariensis, Q. castaneifolia, Q. castaneifolia incana, Q. frainetto, Q. ilex, Q. lusitanica, Q. pyrenaica, Q. suber, Salix cinerea.*
REFERENCES: **(ds)** Balazuc 1984:310; Fernandez Fernandez 1992:526; Gogniat 1991:25; Lombardero 1994:307; Pfeffer 1994c:147,148; Schott 1986:58. **(hb)** Koch 1992:164. **(tx)** Lombardero 1994:307; Pfeffer 1994c:147,148.

Genus **Peridryocoetes** Wood

Page 561 ***nitens*** (Schedl). Add:
HOSTS: Dipterocarpaceae sp.
REFERENCES: **(ds)** Ohno 1990c:85.

Genus **Cyrtogenius** Strohmeyer

Page 563 ***brevior*** (Eggers). Add:
DISTRIBUTION: OCEANIA: **New Guinea**.
HOSTS: *Dipterocarpus* sp., *Mangifera* sp., *Pinus caribaea, P. merkusii, P. thunbergii.*
REFERENCES: **(ds)** Hutacharern et al. 1988:46; Ohno 1990c:84.

Page 565 ***elongatus*** (Eggers). Add:
HOSTS: *Dipterocarpus* sp.
REFERENCES: **(ds)** Ohno 1990c:84.

Page 565 ***fijianus*** (Schedl). Add *noumeanus* (Browne) as a synonym. Add:
FIGURES: Zimmerman 1992:621 (adult).
REFERENCES: **(ds)** Beaver 1976b:538. **(tx)** Beaver 1991b:89.

Page 565 *granulifer* (Beeson). Move to ***samoanus*** (Eggers) as a synonym. Add:
SYNONYMY: Beaver 1991b:90.

Page 566 ***longipennis*** Browne. Add:
HOSTS: *Vatica* sp.
REFERENCES: **(ds)** Ohno 1990c:84.

Page 566 ***luteus*** (Blandford). Add:
REFERENCES: **(ds)** Yin & Huang 1993. **(tx)** Yin & Huang 1993.

Page 567 ***nitidus*** (Hagedorn). Add:
HOSTS: Myristicaceae.

Page 567 *orientalis* Eggers (synonym of ***nitidus*** (Hagedorn)). Add:
REFERENCES: **(ds)** Ohno 1990c:84.

Page 567 *noumeanus* (Browne). Move to ***fijianus*** (Schedl) as a synonym. Add:
SYNONYMY: Beaver 1991b:89.

Page 567 ***perakensis*** (Schedl). Add:
REFERENCES: (**ds**) Ohno 1990c:85.

Page 568 ***samoanus*** (Eggers). Add *granulifer* (Beeson) as a synonym. Add:
REFERENCES: (**tx**) Beaver 1991b:90.

Page 569 ***vaticae*** (Nunberg). Add:
HOSTS: *Anisoptera* sp.
REFERENCES: (**ds**) Ohno 1990c:85.

Add species: ***abruptodeclivis*** Bright 1994:258. Holotype (sex ?); Borneo, Sabah, Mount Kinabalu National Park, Headquarters, 1558 m; DEBC, Ottawa.
FIGURES: Bright 1994:272 (elytral declivity), 273 (antenna).
DISTRIBUTION: ASIA: Malaysia (Sabah).
HOSTS: *Castanopsis* sp.
REFERENCES: (**tx**) Bright 1994:258.

borneensis (Browne). From ***Eidophelus***. Add:
REFERENCES: (**ds**) Ohno 1990c:85. (**tx**) Beaver 1995:202.

cavifrons Bright 1994:259. Holotype (♀); Borneo, Sabah, Mount Kinabalu National Park, Headquarters, 1558 m; DEBC, Ottawa.
FIGURES: Bright 1994:273 (antenna).
DISTRIBUTION: ASIA: Malaysia (Sabah).
REFERENCES: (**tx**) Bright 1994:259.

glabrata Bright 1994:259. Holotype (♀); Borneo, Sabah, Mount Kinabalu National Park, Headquarters, 1558 m; DEBC, Ottawa.
FIGURES: Bright 1994:273 (antenna).
DISTRIBUTION: ASIA: Malaysia (Sabah).
HOSTS: *Quercus* sp.
REFERENCES: (**tx**) Bright 1994:259.

gracilis (Browne). From ***Eidophelus***. Add:
REFERENCES: (**tx**) Beaver 1995:202.

kadazanus Bright 1994:260. Holotype (♀); Borneo, Sabah, Mount Kinabalu National Park, Headquarters, 1558 m; DEBC, Ottawa.
FIGURES: Bright 1994:273 (antenna).
DISTRIBUTION: ASIA: Malaysia (Sabah).
HOSTS: Under bark.
REFERENCES: (**tx**) Bright 1994:260.

lowi Bright 1994:261. Holotype (♀); Borneo, Sabah, Mount Kinabalu National Park, Headquarters, 1558 m; DEBC, Ottawa.
FIGURES: Bright 1994:273 (antenna).
DISTRIBUTION: ASIA: Malaysia (Sabah).
REFERENCES: (**tx**) Bright 1994:261.

mandibularis Bright 1994:261. Holotype (♀); Borneo, Sabah, Mount Kinabalu National Park, Headquarters, 1558 m; DEBC, Ottawa.
FIGURES: Bright 1994:273 (antenna).
DISTRIBUTION: ASIA: Malaysia (Sabah).

HOSTS: *Castanopsis* sp.
REFERENCES: (**tx**) Bright 1994:261.

mediosetosus Bright 1994:262. Holotype (♀); Borneo, Sabah, Mount Kinabalu National Park, Poring Hot Springs, 486–915 m; DEBC, Ottawa.
FIGURES: Bright 1994:273 (antenna).
DISTRIBUTION: ASIA: Malaysia (Sabah).
REFERENCES: (**tx**) Bright 1994:262.

nodulosus Bright 1994:263. Holotype (♀); Borneo, Sabah, Mount Kinabalu National Park, Headquarters, 1558 m; DEBC, Ottawa.
FIGURES: Bright 1994:273 (antenna).
DISTRIBUTION: ASIA: Malaysia (Sabah).
REFERENCES: (**tx**) Bright 1994:263.

obesus Bright 1994:264. Holotype (♀); Borneo, Sabah, Mount Kinabalu National Park, Liwagu Trail, 1558–1890 m; DEBC, Ottawa.
FIGURES: Bright 1994:273 (antenna).
DISTRIBUTION: ASIA: Malaysia (Sabah).
REFERENCES: (**tx**) Bright 1994:264.

piceus Bright 1994:264. Holotype (♀); Borneo, Sabah, Mount Kinabalu National Park, Summit Trail, 1558–1890 m; DEBC, Ottawa.
FIGURES: Bright 1994:273 (antenna).
DISTRIBUTION: ASIA: Malaysia (Sabah).
REFERENCES: (**tx**) Bright 1994:264.

prinavorus Bright 1994:265. Holotype (♀); Borneo, Sabah, Mount Kinabalu National Park, Headquarters, 1558 m; DEBC, Ottawa.
FIGURES: Bright 1994:273 (antenna).
DISTRIBUTION: ASIA: Malaysia (Sabah).
HOSTS: *Quercus* sp.
REFERENCES: (**tx**) Bright 1994:265.

quercicolens Bright 1994:266. Holotype (♀); Borneo, Sabah, Mount Kinabalu National Park, Headquarters, 1558 m; DEBC, Ottawa.
FIGURES: Bright 1994:273 (antenna).
DISTRIBUTION: ASIA: Malaysia (Sabah).
HOSTS: *Quercus* sp.
REFERENCES: (**tx**) Bright 1994:266.

smetanai Bright 1994:266. Holotype (♀); Borneo, Sabah, Mount Kinabalu National Park, blw Layang-Layang, 2600 m; DEBC, Ottawa.
FIGURES: Bright 1994:273 (antenna).
DISTRIBUTION: ASIA: Malaysia (Sabah).
REFERENCES: (**tx**) Bright 1994:266.

tanae Bright 1994:267. Holotype (sex ?); Borneo, Sabah, Mount Kinabalu National Park, New Hut 3343 m; DEBC, Ottawa.
FIGURES: Bright 1994:273 (antenna).
DISTRIBUTION: ASIA: Malaysia (Sabah).
HOSTS: *Rhododendron* sp.
REFERENCES: (**tx**) Bright 1994:267.

tikaludus Bright 1994:268. Holotype (sex ?); Borneo, Sabah, Mount Kinabalu National Park, Headquarters 1558 m; DEBC, Ottawa.
FIGURES: Bright 1994:273 (antenna).

DISTRIBUTION: ASIA: Malaysia (Sabah).
HOSTS: *Quercus* sp.
REFERENCES: **(tx)** Bright 1994:268.

Genus **Dryocoetes** Eichhoff

Page 569 **Dryocoetes** Eichhoff. Add:

KEYS: Lekander 1968:75 (to larvae of Scandinavian species); Pfeffer 1994a:164 (to Central European species), 1994c:135 (to Palearctic species).

REFERENCES: **(an)** Lekander 1968:73. **(tx)** Lekander 1968; Lombardero 1994:316, Pfeffer 1994a:164, 1994c:135.

Page 570 ***aceris*** Krivolutskaya. Add:

REFERENCES: **(ds)** Krivolutskaya 1965a:237, 1973:139. **(hb)** Krivolutskaya 1965a:237,1973:139.

Page 570 ***affaber*** (Mannerheim). Add:

DISTRIBUTION: EUROPE: Ireland.

REFERENCES: **(bv)** Camacho, Pierce, & Borden 1993,1994. **(cn)** Robertson 1990. **(ds)** Bain 1977b:17; Laplante et al. 1991:116; Larochelle 1979:50; Morris 1993:295; O'Conner, Winter, & Good 1991:403,404; Winter 1991a. **(ec)** Bickel 1985. **(hb)** Robertson 1990. **(tx)** Camacho, Pierce, & Borden 1993,1994.

Page 571 ***alni*** (Georg). Add:

FIGURES: Lekander 1968:172 (larval characters); Pfeffer 1994c:309 (gallery).

DISTRIBUTION: EUROPE: Greece, Switzerland, United Kingdom, Yugoslavia.

HOSTS: *Duschekia alnobetula, Populus tremula.*

REFERENCES: **(an)** Lekander 1968:76. **(cn)** Hyman 1992:398. **(ds)** Burakowski et al. 1992:88; Gogniat 1991:25; Hyman 1992:398; Michalski & Ratajczak 1994; Pfeffer 1994c:137. **(ec)** Hyman 1992: 398; Michalski & Ratajczak 1994. **(hb)** Koch 1992:160. **(tx)** Burakowski et al. 1992:88; Lekander 1968; Pfeffer 1994c:137.

Page 572 ***autographus*** (Ratzeburg). Add:

FIGURES: Lekander 1968:171; Pfeffer 1994c:281 (elytral declivity), 302 (gallery).

DISTRIBUTION: EUROPE: Ireland, Slovenia.

HOSTS: *Abies holophylla, A. pectinata, A. sibirica, Larix decidua, L. europaea, L. gmelinii, L. sibirica, Picea abies, P. excelsa, P. glehnii, P. jezoensis, P. obovata, P. omorica, P. orientalis, Pinus cembra, P. koraiensis, P. rotundata, P. sibirica, P. strobus, P. sylvestris.*

REFERENCES: **(an)** Lekander 1968:75. **(bv)** Lindelow, Eidmann, & Nordenheim 1993; Muona & Rutanen 1993; Rauhut, Schmidt, & Schmidt 1993; Otte 1989:239. **(cn)** Jessop & Hammond 1993; Kirchhoff & Führer 1990; Robertson 1990; Zumr & Stary 1991. **(ds)** Bain 1977b:17; Balazuc 1984:309; Balazy & Michalski 1962a:202; Burakowski et al. 1992:89; Dearborn & Donahue 1993:81; Gogniat 1991:24; Jessop & Hammond 1993; Johansson, Anderson, & Nilssen 1994; Koponen & Nuorteva 1973:26; Laplante et al. 1991:116; Larochelle 1979:50; Michalski & Ratajczak 1994; Morris 1993:295;

Nilssen 1993; O'Conner, Winter, & Good 1991:404; Parsons et al. 1991:58; Pfeffer 1994c:136; Schott 1986:57; Siitonen 1994; Titovsek 1983:402; Whitehead 1992b:229–231. **(ec)** Bickel 1985; Dajoz 1990; Johansson, Nilssen, & Anderson 1994; Kirchhoff & Führer 1990; Langor 1991; Michalski & Ratajczak 1994; Michalski, Kaczmarek, & Ratajczak 1992b:146; Muona & Rutanen 1993; Otte 1989:239; Siitonen 1994; Starzyk 1977; Tomalak, Welch, & Galloway 1990; Trojan et al. 1994:91; Väisänen, Bistrom, & Heliövaara 1993; Weslien 1992c. **(hb)** Balazy & Michalski 1962a:202; Johansson, Nilssen, & Anderson 1994; Koch 1992:159; Robertson 1990. **(tx)** Burakowski et al. 1992:89; Lekander 1968; Pfeffer 1994a:165, 1994c:136.

Page 578 *longicollis* Eggers (synonym of ***autographus*** (Ratzeburg)). Add:
NOTES: Pfeffer 1994c:137 (repeats original description).
REFERENCES: **(tx)** Pfeffer 1994c:137.

Page 579 ***baikalicus*** Reitter. Add:
HOSTS: *Larix gmelinii, L. sibirica.*
REFERENCES: **(ds)** Pfeffer 1994c:136. **(tx)** Pfeffer 1994c:136.

Page 579 ***betulae*** Hopkins. Add:
REFERENCES: **(ds)** Dearborn & Donahue 1993:81; Laplante et al. 1991:116; Larochelle 1979:50.

Page 580 ***caryi*** Hopkins. Add:
REFERENCES: **(ds)** Laplante et al. 1991:116; Larochelle 1979:51.

Page 580 ***confusus*** Swaine. Add:
REFERENCES: **(bv)** Camacho & Borden 1994; Camacho, Pierce, & Borden 1993, 1994; Gries 1992; Stock et al. 1990; Vanderwel et al. 1992. **(cn)** Hessburg, Mitchell, & Filip 1994:6,9; Stock, Borden, & Pratt 1994. **(ms)** Vanderwel et al. 1992. **(tx)** Camacho, Pierce, & Borden 1993.

Page 582 ***diluvialis*** (Wickham). Add:
REFERENCES: **(ds)** Carpenter 1992:317.

Page 582 ***granicollis*** (LeConte). Add:
DISTRIBUTION: NORTH AMERICA: United States (**Florida**).
REFERENCES: **(ds)** Laplante et al. 1991:116; Larochelle 1979:50. **(hb)** Weber & McPherson 1991.

Page 582 ***hectographus*** Reitter. Add:
FIGURES: Pfeffer 1994c:281 (elytral declivity).
DISTRIBUTION: EUROPE: Switzerland.
HOSTS: *Abies holophylla, A. nephrolepis, A. sibirica, Larix gmelinii, L. sibirica, Picea abies, P. excelsa, P. obovata.*
REFERENCES: **(bv)** Muona & Rutanen 1993. **(cn)** Zumr & Stary 1991. **(ds)** Burakowski et al. 1992:90; Gogniat 1991:24; Johansson, Anderson, & Nilssen 1994; Li, Shi, & Ao 1984:47; Michalski & Ratajczak 1994; Nilssen 1993; Pfeffer 1994c:136; Siitonen 1990. **(ec)** Michalski & Ratajczak 1994; Muona & Rutanen 1993; Väisänen, Bistrom, & Heliövaara 1993. **(hb)** Koch 1992:159; Li, Shi, & Ao 1984:47. **(tx)** Burakowski et al. 1992:90; Pfeffer 1994a:165, 1994c:136.

Page 583 ***italus*** Eggers. Add:
NOTES: Pfeffer 1994c:137 (repeats original description).
REFERENCES: (**tx**) Pfeffer 1994c:137.

Page 585 ***ramicola*** Reitter. Add:
DISTRIBUTION: EUROPE: S. Russia (Caucasus).
NOTES: Pfeffer 1994c:144 (treated in *Saliciphilus*).
REFERENCES: (**ds**) Pfeffer 1994c:144. (**tx**) Pfeffer 1994c:144.

Page 585 ***rugicollis*** Eggers. Add:
FIGURES: Li, Shi, & Ao 1984:265 (adult, gallery).
REFERENCES: (**ds**) Li, Shi, & Ao 1984:265. (**hb**) Li, Shi, & Ao 1984:265; Nishiguchi 1960a.

Page 586 ***villosus*** (Fabricius). Add:
FIGURES: Lekander 1968:172 (larval characters); Lombardero 1994:319, Plate 6 (adult features, aedeagus, gallery).
DISTRIBUTION: EUROPE: Corsica, Ireland, Lithuania, Poland, Portugal, Spain.
HOSTS: *Castanea sativa, C. vesca, Fagus silvatica, Quercus coccifera, Q. frainetto, Q. ilex, Q. pedunculata, Q. petraea, Q. robur,* Q. sp.
NOTES: Pfeffer 1994c:136 (recognizes two subspecies, *villosus* and *minor*).
REFERENCES: (**an**) Lekander 1968:76. (**bv**) Rauhut, Schmidt, & Schmidt 1993. (**ds**) Alexander 1994; Burakowski et al. 1992:91; Hansen et al. 1990:28; Karalius 1992:9; Lombardero 1994:316; Morris 1993:295; O'Conner, Winter, & Good 1991:404,405; Owen 1993:160; Pfeffer 1994c:136; Schott 1986:57. (**hb**) Koch 1992:160; Owen 1993. (**tx**) Burakowski et al. 1992:91; Lekander 1968; Lombardero 1994:316; Pfeffer 1994c:136.

Page 586 *villosus minor* Eggers (synonym of ***villosus*** (Fabricius)). Add:
NOTES: Pfeffer 1994c:136 (treated as a subspecies).

Add species: ***conspicuus*** Bright 1994:268. Holotype (♂); Borneo, Sabah, Mt. Kinabalu N. P., Headquarters, 1558 m; DEBC, Ottawa.
FIGURES: Bright 1994:273 (antennae), 274 (head).
DISTRIBUTION: ASIA: Malaysia (Sabah).
REFERENCES: (**tx**) Bright 1994:268.

Genus **Dryocoetiops** Schedl

Page 587 ***coffeae*** (Eggers). Add:
DISTRIBUTION: OCEANIA: Timor.
HOSTS: *Coffea robusta.*
REFERENCES: (**cn**) Yunus & Hua 1980:228. (**ds**) Yunus & Hua 1980:228.

Page 588 ***kepongi*** (Schedl). Add:
HOSTS: Burseraceae.
REFERENCES: (**ds**) Ohno 1990c:85.

Page 588 ***laevis*** (Strohmeyer). Add:
REFERENCES: (**ds**) Ohno 1990c:85.

Page 588 *orbus* Browne (synonym of ***laevis*** (Strohmeyer)). Add:
REFERENCES: **(ds)** Browne 1968a:133.

Genus **Ozopemon** Hagedorn

Page 589 ***augustae*** Eggers. Add *kuscheli* Schedl as a synonym. Add:
SYNONYMY: Beaver 1991b:92.

Page 589 ***brownei*** Schedl. Add:
HOSTS: *Anisoptera* sp., *Dipterocarpus* sp., *Dryobalanops* sp., *Parishia* sp., *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990c:85.

Page 589 ***fuscicollis*** Hagedorn. Add:
HOSTS: *Canarium* sp.
REFERENCES: **(ds)** Ohno 1990c:85.

Page 589 ***obanus*** Hagedorn. Add:
HOSTS: *Koompassia malaccensis*.
REFERENCES: **(ds)** Ohno 1990c:85.

Page 590 ***regius*** Hagedorn. Add:
HOSTS: *Alstonia* sp., *Anisoptera* sp., *Dipterocarpus* sp., *Dyera* sp., Sapotaceae.
REFERENCES: **(ds)** Ohno 1990c:85.

Page 590 ***theklae*** Hagedorn. Add:
HOSTS: *Anisoptera* sp., *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990c:85.

Genus **Coccotrypes** Eichhoff

Page 591 **Coccotrypes** Eichhoff. Add:
KEYS: Wood, Stevens, & Lezama 1991b:291 (to Costa Rican species).
REFERENCES: **(cn)** Santos et al. 1994. **(hb)** Santos et al. 1994. **(tx)** Pfeffer 1994a:165, 1994c:138.

Page 591 ***aciculatus*** Schedl. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:291. **(tx)** Wood, Stevens, & Lezama 1991b:291.

Page 592 ***advena*** Blandford. Add:
FIGURES: Zimmerman 1992:617, 631 (adult).
DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii, Oahu), Tonga (Niuapoputapu).
HOSTS: *Calophyllum brasiliense, Eugenia jambos, Pouteria multiflora, Sloanea berteriana.*
REFERENCES: **(cn)** Chey Vun Khen 1986:20. **(ds)** Atkinson & Peck 1994:321; Beaver 1987b:64; Medler 1980:291; Nishida 1992:73. **(hb)** Atkinson & Peck 1994:321.

Page 592 *persicae* Hopkins (synonym of ***advena*** Blandford). Add:
REFERENCES: **(ds)** Nishida 1992:73.

Page 592 ***tutuilensis*** Beeson. Remove from synonymy. Add:
REFERENCES: **(tx)** Beaver 1991b:88.

Page 594 ***cardamomi*** Schaufuss. Add:
FIGURES: Zimmerman 1992:617 (adult).

Page 594 ***carpophagus*** (Hornung). Add:
FIGURES: Booth, Cox, & Madge 1990:196 (adult); Zimmerman 1992:617 (adult).
DISTRIBUTION: EUROPE: Poland. NORTH AMERICA: Costa Rica, Mexico (Chiapas). OCEANIA: Hawaiian Islands (Hawaii, Kauai, Ohau). SOUTH AMERICA: Ecuador (**San Cristóbal**, **Santa Cruz** in Galapagos Islands).
HOSTS: *Annona* sp., *Chamaedorea kurwinskyana, Euterpe globosa, Washingtonia robusta.*
REFERENCES: (**ds**) Atkinson & Peck 1994:321; Booth, Cox, & Madge 1990:195; Borges 1990:116; Equihua-Martinez 1992:60; Nishida 1992:73; Wood, Stevens, & Lezama 1991b:291. (**ec**) Booth, Cox, & Madge 1990:195. (**hb**) Atkinson & Peck 1994:321; Beaver & Löyttynieni 1991; Booth, Cox, & Madge 1990:195. (**tx**) Booth, Cox, & Madge 1990:195; Wood, Stevens, & Lezama 1991b:291.

Page 595 *pygmaeus* Eichhoff (synonym of ***carpophagus*** (Hornung)). Add:
REFERENCES: (**ds**) Burakowski et al. 1992:92. (**tx**) Burakowski et al. 1992:92.

Page 597 ***circumdatus*** Fonseca. Add:
FIGURES: Lepesme 1947:641 (habitus).

Page 598 ***cyperi*** (Beeson). Add:
FIGURES: Eguihua-Martinez 1992:57 (habitus, frons, antenna); Pfeffer 1992:619 (adult); Zimmerman 1992:619 (adult).
DISTRIBUTION: NORTH AMERICA: Mexico (Chiapas).
HOSTS: *Mammea americana, Mangifera indica, Pouteria multiflora, Prioria capaifera, Sloanea berteriana.*
REFERENCES: (**ds**) Atkinson & Peck 1994:321; Equihua-Martinez 1992:60; Wood, Stevens, & Lezama 1991b:291; Yin & Huang 1993. (**hb**) Atkinson & Peck 1994:321. (**tx**) Wood, Stevens, & Lezama 1991b:291; Yin & Huang 1993.

Page 598 *indicus* Eggers (synonym of ***cyperi*** (Beeson)). Add:
REFERENCES: (**ds**) Nishida 1992:73.

Page 599 ***dactyliperda*** (Fabricius). Add:
FIGURES: Lepesme 1947:641 (habitus).
DISTRIBUTION: EUROPE: Poland. OCEANIA: Hawaiian Islands (Hawaii, Kauai, Maui, Oahu).
REFERENCES: (**cn**) Siverio & Montesdeoca 1990. (**ds**) Atkinson & Peck 1994:321; Burakowski et al. 1992:92; Frank & McCoy 1992:6; Kislev 1992; Nishida 1992:73; Wood, Stevens, & Lezama 1991b:291. (**ec**) Hussein 1990. (**hb**) Atkinson & Peck 1994:321; Hussein 1990; Pfeffer 1994c:138; Siverio & Montesdeoca 1990. (**tx**) Burakowski et al. 1992:92; Naumann 1993:160; Pfeffer 1994a:165, 1994c:138; Wood, Stevens, & Lezama 1991b:291.

Page 602 ***distinctus*** (Motschulsky). Add:
HOSTS: *Annona muricata, Sabal palmetto, Washingtonia robusta.*
REFERENCES: (**ds**) Atkinson & Peck 1994:321; Nishida 1992:73. (**hb**) Atkinson & Peck 1994:321.

Page 603 ***fallax*** (Eggers). Add:
FIGURES: Zimmerman 1992:619 (adult).
DISTRIBUTION: ASIA: Thailand.
HOSTS: *Bruguiera parviflora, Ceriops tegal, Pterocarpus macrocarpus, Xylocarpus moluccensis.*
REFERENCES: **(ds)** Hutacharern et al. 1988:7,13.

Page 603 ***gedeanus*** (Eggers). Add:
REFERENCES: **(cn)** Chey Vun Khen 1986:20; Connell 1975. **(ds)** Connell 1975.

Page 604 ***graniceps*** (Eichhoff). Add:
REFERENCES: **(ec)** Matsuda 1982.

Page 604 ***jacobsoni*** (Eggers). Add:
REFERENCES: **(ds)** Schedl 1971c:369.

Page 604 *kuscheli* (Schedl). Move to ***augustae*** Eggers as a synonym. Add:
SYNONYMY: Beaver 1991b:92.

Page 605 ***longior*** (Eggers). Add:
HOSTS: *Mangifera* sp., *Parishia* sp.

Page 605 *linearis* Eggers (synonym of ***longior*** (Eggers)). Add:
REFERENCES: **(ds)** Ohno 1990c:85.

Page 605 *nitidipennis* Schedl (synonym of ***longior*** (Eggers)). Add:
REFERENCES: **(ds)** Ohno 1990c:85.

Page 606 ***marginatus*** (Browne). Add:
FIGURES: Beaver & Browne 1978:576.
REFERENCES: **(ec)** Beaver 1979b:298. **(hb)** Beaver 1979b:298.

Page 608 *glandis* Beeson (synonym of ***papuanus*** (Eggers)). Add:
REFERENCES: **(ds)** Schedl 1962b:186.

Page 609 ***rhizophorae*** (Hopkins). Add:
DISTRIBUTION: OCEANIA: New Guinea.
HOSTS: Fruits of *Shorea* sp.
REFERENCES: **(bv)** Gray 1974c. **(cn)** Mead 1970:4. **(ds)** Atkinson & Peck 1994:321. **(hb)** Atkinson & Peck 1994:321; Browne 1961c: 97; Gray 1974c.

Page 610 *nephelii* Eggers (synonym of ***rhizophorae*** (Hopkins)). Add:
REFERENCES: **(cn)** Connell 1975. **(ds)** Connell 1975.

Page 610 ***robustulus*** Wood. Add:
DISTRIBUTION: ASIA: Indonesia (Java).

Page 610 ***robustus*** Eichhoff. Add:
DISTRIBUTION: NORTH AMERICA: United States (Florida).
HOSTS: *Euterpe* sp.
REFERENCES: **(ds)** Atkinson & Peck 1994:321; Frank & McCoy 1992:6. **(hb)** Atkinson & Peck 1994:321.

Page 611 ***sannio*** (Schaufuss). Add:
DISTRIBUTION: AFRICA: Uganda.

Page 612 ***subcribrosus*** (Blandford). Add:
HOSTS: *Anisoptera* sp., *Dryobalanops* sp., *Palaquium* sp., *Vatica* sp.
REFERENCES: **(ds)** Ohno 1990c:85; Schedl 1975a.

Page 613 ***tahitensis*** (Beeson). Add:
DISTRIBUTION: OCEANIA: Tonga (Niuatoputapu, Tongatapu).

Page 613 *striatus* (Eggers) (synonym of ***tahitensis*** (Beeson)). Add:
REFERENCES: **(ds)** Beaver 1987b:64.

Page 613 ***taprobanus*** (Blandford). Add:
DISTRIBUTION: ASIA: Malaysia (Sarawak).
HOSTS: Fruits of *Shorea* sp.
REFERENCES: **(cn)** Connell 1975. **(ds)** Connell 1975.

Page 614 ***variabilis*** (Beeson). Add:
HOSTS: *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990c:85; Schedl 1975a.

Page 614 ***vulgaris*** (Eggers). Add:
REFERENCES: **(ds)** Atkinson & Peck 1994:321; Frank & McCoy 1992:6. **(hb)** Atkinson & Peck 1994:321.

Add species: ***tutuilensis*** Beeson. Add:
REFERENCES: **(tx)** Beaver 1991b:88.
FIGianus (Schedl). SYNONYMY: Beaver 1991b:88.

tapatapaoanus (Schedl). SYNONYMY: Beaver 1991b:88.

New Genus: ***Dryomites** Bright & Poinar 1994:186. Type species: ***Dryomites incognitus*** Bright & Poinar 1994, monotypic.
REFERENCES: Bright & Poinar 1994:186

****incognitus*** Bright & Poinar 1994:186. Holotype (sex?); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:187.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: **(tx)** Bright & Poinar 1994.

TRIBE CRYPTURGINI

Page 615 **Crypturgini**. Add:
KEYS: Pfeffer 1994a:161 (to Central Europe genera), 1994c:111 (to Palearctic genera).
REFERENCES: **(tx)** Lombardero 1994:321; Pfeffer 1994a:161, 1994c:111.

Genus **Dolurgus** Eichhoff

Page 615 ***pumilus*** (Mannerheim). Add:
REFERENCES: **(ds)** Parsons et al. 1991:58.

Genus **Coleobothrus** Enderlein

Page 615 **Coleobothrus** Enderlein. Add:
REFERENCES: **(tx)** Pfeffer 1994c:121.

Page 615 ***alluaudi*** (Peyerimhoff). Add:
DISTRIBUTION: AFRICA: Ethiopia.
REFERENCES: **(ds)** Pfeffer 1994c:122. **(tx)** Pfeffer 1994c:122.

Genus **Aphanarthrum** Wollaston

Page 616 **Aphanarthrum** Wollaston. Add:
KEYS: Pfeffer 1994c:120 (to Moroccan species).
REFERENCES: **(tx)** Pfeffer 1994c:120.

Page 616 ***affine*** Wollaston. Add:
HOSTS: *Euphorbia canariensis, E. obtusifolia.*
REFERENCES: **(ds)** Pfeffer 1994c:121. **(tx)** Pfeffer 1994c:121.

Page 616 ***bicinctum*** Wollaston. Add:
DISTRIBUTION: AFRICA: Morocco.
HOSTS: *Euphorbia dendroides.*
REFERENCES: **(ds)** Pfeffer 1994c:121. **(tx)** Pfeffer 1994c:121.

Page 619 ***mairei*** Peyerimhoff. Add:
NOTES: Pfeffer 1994c:120 (treated in *Cisurgus*).
REFERENCES: **(ds)** Pfeffer 1994c:120. **(tx)** Pfeffer 1994c:120.

Genus **Deropria** Enderlein

Page 620 **Deropria** Enderlein. Add:
REFERENCES: **(tx)** Pfeffer 1994c:122.

Page 620 ***elongata*** (Eggers). Add:
REFERENCES: **(ds)** Pfeffer 1994c:122. **(tx)** Pfeffer 1994c:122.

Genus **Crypturgus** Erichson

Page 620 **Crypturgus** Erichson. Add:
KEYS: Lekander 1968:34 (to larvae of Scandinavian species), Lombardero 1994:321 (to species in northwest Spain); Pfeffer 1994a:162 (to Central European species), 1994c:113 (to European species).
REFERENCES: **(an)** Lekander 1968:33. **(tx)** Lekander 1968:33; Lombardero 1994:321; Pfeffer 1994a:162, 1994c:113.

Page 620 ***alutaceus*** Schwarz. Add:
REFERENCES: **(ds)** Atkinson & Peck 1994:322. **(hb)** Atkinson & Peck 1994:322.

Page 620 ***borealis*** Swaine. Add:
REFERENCES: **(en)** Robertson 1990. **(ds)** Laplante et al. 1991:116; Larochelle 1979:50; Schwert 1992:81,84; Winter 1991a. **(hb)** Robertson 1990.

Page 621 ***cinereus*** (Herbst). Add:
FIGURES: Lekander 1968:154 (larval characters); Pfeffer 1994c:272 (pronotal outline), 292 (habitus).
DISTRIBUTION: EUROPE: Poland, United Kingdom.
HOSTS: *Abies alba, A. pectinata, A. sibirica, Picea abies, P. excelsa, P. obovata, P. orientalis, Pinus halepensis, P. halepensis brutia, P. leucodermis, P. nigra, P. nigra laricio, P. nigra pallasiana, P. pinaster, P. pinea, P. rotundata, P. strobus. P. sylvestris.*

REFERENCES: **(an)** Lekander 1968:34. **(bv)** Rauhut, Schmidt, & Schmidt 1993. **(ds)** Balazy & Michalski 1962a:201; Burakowski et al. 1992:92; Gillerfors 1988:43; Gogniat 1991:24; Heliövaara, Väisänen, & Immonen 1991; Kinsky & Zumr 1988; Michalski & Ratajczak 1994; Nilssen 1993; Pfeffer 1994c:116; Schott 1986:57; Siitonen 1990; Titovsek 1983:399; Winter 1990. **(ec)** Hilt & Ammer 1994; Kinsky & Zumr 1988; Michalski & Ratajczak 1994; Trojan et al. 1994:91; Winter 1992. **(hb)** Balazy & Michalski 1962a:201; Koch 1992:158; Pfeffer 1994c:118. **(tx)** Burakowski et al. 1992:92; Lekander 1968; Pfeffer 1994c:116.

Page 623 *subcribrosus* (synonym of ***cinereus*** (Herbst)). Add:

REFERENCES: **(ds)** Owen 1994b:172; Winter 1990, 1991a, 1992. **(ec)** Winter 1992.

Page 624 ***hispidulus*** Thompson. Add:

FIGURES: Lekander 1968:154 (larval characters); Pfeffer 1994c:272 (pronotal outline), 292 (habitus).

DISTRIBUTION: EUROPE: Switzerland, Yugoslavia.

HOSTS: *Abies alba, A. sibirica, Larix decidua, L. europaea, Picea abies, P. excelsa, P. jezoensis, P. obovata, Pinus mugo uncinata, P. rotundata, P. sylvestris.*

REFERENCES: **(an)** Lekander 1968:34. **(bv)** Rauhut, Schmidt, & Schmidt 1993. **(ds)** Balazy & Michalski 1962a:201; Burakowski et al. 1992:92; Gogniat 1991:24; Hansen et al. 1992:83; Michalski & Ratajczak 1994; Pfeffer 1994c:114; Whitehead 1992b:230,231; Winter 1991a. **(ec)** Michalski & Ratajczak 1994; Trojan et al. 1994:91. **(hb)** Balazy & Michalski 1962a:201; Koch 1992:158; Pfeffer 1994c:117. **(tx)** Burakowski et al. 1992:92; Lekander 1968; Pfeffer 1994a:162, 1994c:114.

Page 624 ***mediterraneus*** Eichhoff. Add:

FIGURES: Lombardero 1994:330, Plate 7 (adult features, aedeagus); Pfeffer 1994c:272 (pronotal outline).

HOSTS: *Abies pinsapo, Pinus maritima, P. radiata.*

REFERENCES: **(ds)** Chakali 1992:508; Lombardero 1994:327; Pfeffer 1994c:117. **(hb)** Lombardero 1994:327; Pfeffer 1994c:118. **(tx)** Lombardero 1994:327; Pfeffer 1992, 1994c:117.

Page 625 *dubius* Eichhoff (synonym of ***mediterraneus*** Eichhoff). Add:

NOTES: Pfeffer 1994c:117 (treats this taxon as a valid species).

REFERENCES: **(ds)** Pfeffer 1994c:117. **(tx)** Pfeffer 1994c:117.

Page 625 ***numidicus*** Ferrari. Add:

FIGURES: Pfeffer 1994c:272 (pronotal outline).

HOSTS: *Pinus brutia, P. nigra, P. nigra mauretanica, P. pinea.*

REFERENCES: **(ds)** Chakali 1992:508; Pfeffer 1994c:116. **(ec)** Markalas 1991:74. **(hb)** Pfeffer 1994c:118. **(tx)** Pfeffer 1994c:116.

Page 625 ***pusillus*** (Gyllenhal). Add:

FIGURES: Lombardero 1994:325, Plate 7 (adult features, aedeagus [as *cribellus*]); Pfeffer 1994c:272 (pronotal outline), 292 (habitus).

HOSTS: *Abies alba, A. borisii regis, A. cephalonica, A. holophylla, A. pectinata, A. siberica, Cedrus atlantica, Larix decidua, L. europaea, L. gmelinii, L. siberica, Picea abies, P. excelsa,*

P. jezoensis, P. obovata, P. omorica, P. orientalis, Pinus cembra, P. densiflora, P. halepensis, P. halepensis brutia, P. koraiensis. P. leucodermus, P. mugo, P. nigra, P. nigra balcanica, P. nigra cevenensis, P. nigra laricioi, P. nigra mauretanica, P. nigra pallasiana, P. peuce, P. pinaster, P. pinea, P. pumila, P. radiata, P. rotundata, P. sibirica, P. strobus, P. sylvestris.
REFERENCES: (**bv**) Otte 1989:239. (**ds**) Balazy & Michalski 1962a:201; Burakowski et al. 1992:94; Gillerfors 1988:43; Gogniat 1991:24; Laplante et al. 1991:116; Larochelle 1979:50; Lombardero 1994:322; Michalski & Ratajczak 1994; Pfeffer 1994c:114; Schott 1986:57; Siitonen 1990; Titovsek 1983:400; Whitehead 1992b:230,231; Winter 1991a. (**ec**) Hilt & Ammer 1994; Langor 1991; Michalski & Ratajczak 1994; Otte 1989:239; Trojan et al. 1994:91. (**hb**) Balazy & Michalski 1962a:201; Koch 1992:158; Lombardero 1994:322; Pfeffer 1994c:117. (**tx**) Burakowski et al. 1992:94; Lombardero 1994:322; Pfeffer 1994a:162, 1994c:114.

Page 628 *cedri* Eichhoff (synonym of ***pusillus*** (Gyllenhal)).
NOTES: Pfeffer 1994c:117 (treats this taxon as a valid species).
REFERENCES: (**ds**) Pfeffer 1994c:117. (**hb**) Pfeffer 1994c:118. (**tx**) Pfeffer 1994c:117.

Page 628 *atomus* LeConte (synonym of ***pusillus*** (Gyllenhal)). Add:
REFERENCES: (**ds**) Dearborn & Donahue 1993:78.

Page 628 *parallelocollis* Eichhoff (synonym of ***pusillus*** (Gyllenhal)). Add:
NOTES: Pfeffer 1994a:163, 1994c:115 (treats this taxon as a valid species).
REFERENCES: (**hb**) Pfeffer 1994c:118. (**tx**) Pfeffer 1994a:163, 1994c:115.

Page 629 *crebellus* Reitter (synonym of ***pusillus*** (Gyllenhal)). Misspelling: change to *cribellus*. Add:
REFERENCES: (**hb**) Pfeffer 1994c:118. (**tx**) Lombardero 1994:322; Pfeffer 1994a:163.

Page 629 *cylindricollis* Eggers (synonym of ***pusillus*** (Gyllenhal)). Add:
NOTES: Pfeffer 1994a:163, 1994c:115 (treats this taxon as a valid species).
REFERENCES: (**hb**) Pfeffer 1994c:118. (**tx**) Pfeffer 1994a:163, 1994c:115.

Page 629 ***tuberosus*** Niisima. Add:
REFERENCES: (**hb**) Nishiguchi 1960a.

Genus **Cisurgus** Reitter

Page 630 **Cisurgus** Reitter. Add:
KEYS: Pfeffer 1994c:118 (to Palearctic species).
REFERENCES: (**tx**) Pfeffer 1994c:118.

Page 630 ***ferulae*** Pfeffer. Add:
FIGURES: Pfeffer 1994c:271 (pronotal outline).
REFERENCES: (**ds**) Pfeffer 1994c:119. (**tx**) Pfeffer 1994c:119.

Page 630 ***filum*** (Reitter). Add:
REFERENCES: (**ds**) Pfeffer 1994c:119. (**tx**) Pfeffer 1994c:119.

Page 630 ***maurus*** Eggers. Add:
FIGURES: Pfeffer 1994c:271 (pronotal outline).
REFERENCES: **(ds)** Pfeffer 1994c:119. **(tx)** Pfeffer 1994c:119.

Page 630 ***occidentalis*** Peyerimhoff. Add:
REFERENCES: **(ds)** Pfeffer 1994c:120. **(tx)** Pfeffer 1994c:120.

Page 630 ***ragusae*** Reitter. Add:
DISTRIBUTION: EUROPE: Yugoslavia ("Dalmatia").
HOSTS: *Euphorbia dendroides* (?).
REFERENCES: **(ds)** Pfeffer 1994c:118. **(tx)** Pfeffer 1994c:118.

Page 630 ***resiniferae*** Peyerimhoff. Add:
HOSTS: *Euphorbia resinifera.*
REFERENCES: **(ds)** Pfeffer 1994c:120. **(tx)** Pfeffer 1994c:120.

Page 630 *pusillus* Wollaston (synonym of ***wollastoni*** (Eichhoff)). Add:
REFERENCES: **(ds)** Pfeffer 1994c:119. **(tx)** Pfeffer 1994c:119.

Add species: ***seselii*** Coffin & Téocchi 1991:157. Holotype ♂; Orange, France; MNHN, Paris.
FIGURES: Coffin & Téocchi 1991.
DISTRIBUTION: EUROPE: France.
HOSTS: Roots of *Seseli tortuosum.*
REFERENCES: **(hb)** Coffin & Téocchi 1991. **(tx)** Coffin & Téocchi 1991.

suturatum (Peyerimhoff) 1925:12 (*Aphanarthrum*).
DISTRIBUTION: AFRICA: Morocco.
HOSTS: *Euphorbia resinifera.*
NOTES: Omitted from 1992 catalog. Pfeffer 1994c:119 (elevated to full species status from subspecies of **A. *mairei***). Probably a synonym of **A. *mairei***.
REFERENCES: **(ds)** Pfeffer 1994c:119. **(tx)** Pfeffer 1994c:119.

TRIBE XYLOTERINI

Page 632 **Xyloterini.** Add:
REFERENCES: **(tx)** Lombardero 1994:333; Pfeffer 1994c:196.

Genus **Trypodendron** Stephens

Page 632 **Trypodendron** Stephens. Add:
KEYS: Lekander 1968:98 (to larvae of Scandinavian species); Lombardero 1994:333 (to species in northwest Spain).
NOTES: Pfeffer 1994c:201 (places this generic name in synonymy under *Xyleborus* Eichhoff; this is an erroneous concept, *Trypodendron* is the correct name).
REFERENCES: **(cn)** Lekander 1968:96. **(ms)** Anonymous 1993a. **(tx)** Lekander 1968; Lombardero 1994:333.

Page 632 *Xyloterus* Erichson (synonym of **Trypodendron** Stephens). Add:
KEYS: Pfeffer 1994a:179 (to Central European species), 1994c:197 (to Palearctic species).
REFERENCES: **(tx)** Pfeffer 1994a:179, 1994c:196.

Page 632 ***betulae*** Swaine. Add:

DISTRIBUTION: NORTH AMERICA: United States (Oregon).

REFERENCES: (**ds**) Dearborn & Donahue 1993:80; Furniss et al. 1992:374; Laplante et al. 1991:16; Larochelle 1979:50. (**ec**) Dearborn & Donahue 1993:80. (**hb**) Furniss et al. 1992:374.

Page 633 ***domesticum*** (Linnaeus). Add:

FIGURES: Joly 1977:10 (gallery); Lekander 1968:185 (larval characters); Lombardero 1994:330, Plate 7 (adult features, aedeagus, gallery); Pfeffer 1994c:292 (habitus), 293 (elytral declivity, antenna).

DISTRIBUTION: EUROPE: Ireland.

HOSTS: *Acer pseudoplatanus, Alnus incana, Betula pendula, B. pubescens, B. verrucosa, Caragana* spp., *Castanea vesca, Crataegus* sp., *Fagus orientalis, F. sylvatica, Fraxinus excelsior, Ilex aquifolium, Pyrus malus, Quercus pedunculata, Q. petraea, Q. pyrenaica Q. rubur, Salix caprea,* S. sp., *Sorbus aria, S. aucuparia.*

REFERENCES: (**an**) Lekander 1968:100. (**bv**) Byers 1992a; Rauhut, Schmidt, & Schmidt 1993. (**cn**) Baciu et al. 1981; Hanke 1991; Jessop & Hammond 1993; Kohnle et al. 1981; Schönherr, Krautwurst, & Rossler 1983. (**ds**) Balazy & Michalski 1962a:01; Burakowski et al. 1992:95; Gogniat 1991:26; Jessop & Hammond 1993; Lombardero 1994:334; Lombardero & Novoa 1994; Michalski & Ratajczak 1994; Morris 1993:295; O'Conner, Winter, & Good 1991:404,407; Owen 1993:160; Pfeffer 1994c:198; Schedl 1967c:73; Schott 1986:58; Titovsek 1983:415. (**ec**) Eck 1990b; Eckloff & Ziegler 1991; Michalski & Ratajczak 1994; Michalski, Kaczmarek, & Ratalczak 1992b:145. (**hb**) Balazy & Michalski 1962a:01; Grosser 1984; Koch 1992:170; Owen 1993; Rauhut, Schmidt, & Schmidt 1993. (**ms**) Skirkevicius 1993:62. (**tx**) Burakowski et al. 1992:95; Lekander 1968; Lombardero 1994:334; Pfeffer 1994a:179, 1994c:198.

Page 635 ***laeve*** Eggers. Add:

FIGURES: Pfeffer 1994c:293 (antenna, frons).

DISTRIBUTION: EUROPE: Austria, **Finland**.

HOSTS: *Picea abies, P. jezoensis, P. obovata, Pinus sylvestris.*

REFERENCES: (**ds**) Pfeffer 1994c:198. (**tx**) Pfeffer 1994a:180, 1994c:198.

Page 636 *piceum* Strand (synonym of ***laeve*** Eggers). Add:

REFERENCES: (**ds**) Lundberg 1974:92; Muona 1989. (**hb**) Koch 1992:170.

Page 636 ***lineatum*** (Olivier). Add:

FIGURES: Anonymous 1990b:6 (adult); Joly 1977:11 (adult, larva); Lekander 1968:184 (larval characters); Pfeffer 1994c:292 (habitus), 293 (elytral declivity, antenna), 302 (gallery).

DISTRIBUTION: ASIA: Israel.

HOSTS: *Abies alba, A. bornmuelleriana, A. cilicica, A. holophylla, A. nephrolepis, A. nordmanniana, A. numidica, A. pectinata, A. pinaspo, A. sibirica, Cedrus atlantica, C. libani, Larix decidua, L. gmelinii, L. leptolepis, L. sibirica, Picea abies, P. excelsa, P. jezoensis, P. obovata, P. omorica, P. orientalis, Pinus cembra, P. halepensis, P. halepensis brutia, P. leucodermis, P. mugo, P. nigra, P. peuce, P. pinaster, P. sibirica, P. strobus, P. sylvestris, Populus tremula, Pseudotsuga menziesii, Tsuga canadensis.*

REFERENCES: **(an)** Lekander 1968:98; Roth-Holzapfel & Funke 1990. **(bv)** Dominik 1986; Kelsey 1994a, 1994b; Lindelow, Risberg, & Sjodin 1992; Muona & Rutanen 1993; Otte 1989:238; Rauhut, Schmidt, & Schmidt 1993; Reiche 1967b; Salom & McLean 1991a, 1991b; Schroeder 1990b, 1991; Setter & Borden 1992; Starzyk et al. 1990; Wegensteiner & Führer 1991; Wright 1965; Zumr 1992a. **(cn)** Ammer & Weiss 1967; Anonymous 1990b:6; Bathon 1991; Brandes 1990; Busch 1990; Chlodny 1982; Dimitri et al. 1992; Dominik & Kinelski 1979, 1985; Dominik, Kinelski, & Rutkiewicz 1988; Dubbel 1991, 1992; Funke & Petershagen 1991; Glos 1989a, 1989b; Gotze et al. 1985; Graf & Manser 1989; Hanke 1991; Klimetzek & Schlenstedt 1991; Kohnle et al. 1992a; Kolk 1985a, 1992; König 1992; Lindgren 1990; Lindgren & Fraser 1994; Luitjes 1977; McLean & Salom 1989; McLean, Lam, & Sauder 1992:165; Mohring 1983; Nef 1987; Orbay et al. 1994; Robertson 1990; Saarenmaa 1990; Schröter 1991; Starzyk et al. 1990; Titovsek 1993b; Trofimov & Lipatkin 1989; Tuovinen 1961. **(ds)** Bain 1977b:16; Balazuc 1984:310; Balazy & Michalski 1962a:200; Buck 1955b:191; Burakowski et al. 1992:97; Dearborn & Donahue 1993:80; Gogniat 1991:27; Johansson, Anderson, & Nilssen 1994; Kinsky & Zumr 1988; Koponen & Nuorteva 1973:26; Laplante et al. 1991:116; Larochelle 1979:50; Lundberg 1974:92, 1979:31; Michalski & Ratajczak 1994; Nilssen 1993; Notman 1920:184; O'Conner, Winter, & Good 1991:404,408; Parsons et al. 1991:59; Pfeffer 1994c:199; Schott 1986:58; Siitonen 1990; Titovsek 1983:416; Welch 1968b:19; Whitehead 1992b:230,231; Yanovskii 1989:64. **(ec)** Dajoz 1990; Eck 1990b; Heliövaara & Väisänen 1991; Kinsky & Zumr 1988; Michalski & Ratajczak 1994; Michalski, Kaczmarek, & Ratajczak 1992b:145; Muona & Rutanen 1993; Nicolai et al. 1992; Nilssen 1993; Novak 1970; Otte 1989:239; Prazak 1991; Salom & McLean 1990a; Trojan et al. 1994:91. **(hb)** Balazy & Michalski 1962a:200; Dimitri et al. 1992; Funke & Petershagen 1991; Grosser 1984; Koch 1992:170; Lam & McLean 1992: McIntosh & McLean 1992; McLean & Salom 1989; Nef 1987; Otte 1989:239; Prazak 1991; Rauhut, Schmidt, & Schmidt 1993; Riba & Blas 1994; Salom & McLean 1990a, 1990b, 1991a; Robertson 1990; Wegensteiner & Führer 1991. **(ms)** Anonymous 1990b:6; Bloch & Sech 1990; Skirkevicius 1993:62. **(tx)** Burakowski et al. 1992:97; Lekander 1968; Pfeffer 1994a:180, 1994c:199.

Page 643 ***granulatum*** Eggers (synonym of ***lineatum*** (Olivier)). Add:

NOTES: Pfeffer 1994c:200 (treats this taxon as a valid species).

REFERENCES: **(ds)** Pfeffer 1994c:200. **(tx)** Pfeffer 1994c:200.

Page 644 ***retusum*** (LeConte). Add:

DISTRIBUTION: NORTH AMERICA: Canada (**Nova Scotia**), United States (Maine).

REFERENCES: **(ds)** Dearborn & Donahue 1993:80; Laplante et al. 1991:116; Larochelle 1979:50; Parsons et al. 1991:59.

Page 645 ***rufitarsus*** (Kirby). Add:

REFERENCES: **(cn)** Robertson 1990. **(ds)** Laplante et al. 1991:116; Larochelle 1979:50. **(hb)** Robertson 1990.

Page 646 ***signatum*** (Fabricius). Add:

FIGURES: Lekander 1968:186 (larval characters); Lombardero 1994:338, Plate 7 (adult features, aedeagus); Pfeffer 1994c:292 (habitus), 293 (elytral declivity, antenna).

DISTRIBUTION: EUROPE: Switzerland.

HOSTS: *Acer platanoides, A. pseudoplatanus, Alnus glutinosa, Betula pendula, B. pubescens, B. verrucosa, Carpinus betulus,* C. sp., *Corylus avellana,* C. sp., *Fagus sylvatica, Fraxinus excelsior, F. ornus, Malus* sp., *Ostrya carpinifolia, Populus* spp., *Prunus armeniaca, P. avium, P. cerasus, P.* sp., *Pyrus malus, Quercus cerris, Q. petraea, Q. robur, Q. pedunculata, Q. sessiliflora, Robinia pseudoacacia, Sorbus aucuparia, S. torminalis, Tilia parvifolia, Ulmus montana.*

REFERENCES: (**an**) Lekander 1968:101. (**bv**) Rauhut, Schmidt, & Schmidt 1993. (**cn**) Hanke 1991; Hyman 1992:405; Kohnle et al. 1992a; Saarenmaa 1990. (**ds**) Balazy & Michalski 1962a:201; Burakowski et al. 1992:95; Gogniat 1991:27; Hyman 1992:405; Lombardero 1994:338; Lundberg 1974:92, Michalski & Ratajczak 1994; Pfeffer 1994c:199; Schott 1986:58; Titovsek 1983:416; Yanovskii 1989:64. (**ec**) Hyman 1992:405; Michalski & Ratajczak 1994; Nakasima et al. 1992:242. (**hb**) Balazy & Michalski 1962a:201; Koch 1992:170; Osumi & Mizuno 1992. (**tx**) Burakowski et al. 1992:95; Lekander 1968; Lombardero 1994:338; Pfeffer 1994a:180, 1994c:199.

Genus **Indocryphalus** Eggers

Page 648 ***intermedius*** (Sampson). Add:

DISTRIBUTION: ASIA: Bhutan.

Genus **Xyloterinus** Swaine

Page 649 ***politus*** (Say). Add:

REFERENCES: (**cn**) Robertson 1990. (**ds**) Dearborn & Donahue 1993:79; Laplante et al. 1991:116; Larochelle 1979:50. (**hb**) Robertson 1990; Weber & McPherson 1991.

TRIBE XYLEBORINI

Page 651 **Xyleborini.** Add:

KEYS: Holzschuh 1994:312 (to genera in Europe); Lombardero 1994:342 (to genera in northwest Spain).

REFERENCES: (**tx**) Holzschuh 1994:312; Lombardero 1994:342; Pfeffer 1994c:200.

Genus **Premnobius** Eichhoff

Page 651 **Premnobius** Eichhoff. Add:

KEYS: Ohno 1990a:23 (to intercepted species in Japan).

REFERENCES: (**tx**) Ohno 1990a:23.

Page 651 ***ambitiosus*** (Schaufuss). Add:

DISTRIBUTION: AFRICA: Equatorial Guinea.

HOSTS: *Sterculia rhinopetala.*

REFERENCES: **(an)** Van Ryn-Tournel 1972. **(ds)** Menier 1973. **(tx)** Ohno 1990a:23.

Page 651 ***cavipennis*** Eichhoff. Add:
DISTRIBUTION: NORTH AMERICA: Costa Rica.
REFERENCES: **(cn)** Zanuncio et al. 1993. **(ds)** Atkinson & Peck 1994:322; Wood, Stevens, & Lezama 1991a:134; Zanuncio et al. 1993. **(hb)** Atkinson & Peck 1994:322; Beaver & Löyttyniemi 1991. **(tx)** Ohno 1990a:23; Wood, Stevens, & Lezama 1991a:134.

Page 653 ***corthyloides*** Hagedorn. Add:
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: **(ds)** Medler 1980:291.

Add species: ***adjunctus*** (Eggers). From **Coptoborus**. **NEW COMBINATION** (ex Beaver (1995), personal communication). Add:
REFERENCES: **(hb)** Beaver & Löyttyniemi 1991.

Genus **Sampsonius** Eggers

Page 655 **Sampsonius** Eggers. Add:
KEYS: Wood, Stevens, & Lezama 1991b:291 (to Costa Rican species).
REFERENCES: **(tx)** Schönherr 1994; Wood, Stevens, & Lezama 1991b:291.

Page 655 ***dampfi*** Schedl. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:292. **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994. **(tx)** Wood, Stevens, & Lezama 1991b:292.

Page 655 ***detractus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:291. **(tx)** Wood, Stevens, & Lezama 1991b:291.

Page 656 ***usurpatus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:291. **(tx)** Wood, Stevens, & Lezama 1991b:291.

Add species: ***giganteus*** Schönherr 1994: 65. Holotype (♀); Cuiabá, MT, Brazil; DZUFP, Curitiba.
FIGURES: Schönherr 1994:66.
DISTRIBUTION: SOUTH AMERICA: Brazil.
REFERENCES: **(tx)** Schönherr 1994:65.

pedrosai Schönherr 1994:67. Holotype (♀); Antonina, PR, Brazil: DZUFP, Curitiba.
FIGURES: Schönherr 1994:68.
DISTRIBUTION: SOUTH AMERICA: Brazil.
REFERENCES: **(tx)** Schönherr 1994:67.

prolongatus Schönherr 1994:66. Holotype (♀); Manaus, AM, Brazil; DZUFP, Curitiba.
FIGURES: Schönherr 1994:67.
DISTRIBUTION: SOUTH AMERICA: Brazil.
REFERENCES: **(tx)** Schönherr 1994:66.

Genus **Dryocoetoides** Hopkins

Page 656 **Dryocoetoides** Hopkins. Add:
KEYS: Wood, Stevens, & Lezama 1991b:292 (to Costa Rican species).
REFERENCES: (**tx**) Wood, Stevens, & Lezama 1991b:292.

Page 656 ***alter*** (Eggers). Add:
REFERENCES: (**ec**) Carrano-Moreira & Pedrosa-Macedo 1994.

Page 656 ***capucinus*** (Eichhoff). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Oaxaca).
HOSTS: *Acacia pennatula, Leucaenia* sp., *Miconia trinerva.*
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:464; Wood, Stevens, & Lezama 1991b:292. (**hb**) Noguera-Martinez & Atkinson 1990:464. (**tx**) Wood, Stevens, & Lezama 1991b:292.

Page 658 ***monachus*** (Blandford). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:292. (**tx**) Wood, Stevens, & Lezama 1991b:292.

Page 658 ***obtusitruncatus*** (Schedl). Add:
REFERENCES: (**tx**) Marinoni et al. 1992:126.

Genus **Leptoxyleborus** Wood

Page 659 ***concisus*** (Blandford). Add:
HOSTS: *Anisoptera* sp., *Dyera* sp., *Michelia* sp., *Octomeles sumatrana.*
REFERENCES: (**ds**) Ohno 1990c:88.

Page 660 ***depressus*** (Eggers). Add:
HOSTS: *Agathis* sp., *Dipterocarpus* sp., *Dryobalanops* sp.

Page 660 *sejugatus* Schedl (synonym of ***depressus*** (Eggers)). Change holotype depository to NHMW. Add:
REFERENCES: (**ds**) Ohno 1990c:92.

Page 660 ***punctatissimus*** (Eichhoff). Add:
HOSTS: *Dipterocarpus* sp., Sapotaceae sp., *Shorea* sp.
REFERENCES: (**ds**) Ohno 1990c:92.

Page 660 ***sordicauda*** (Motschulsky). Add:
REFERENCES: (**ds**) Bain 1977b:17.

Genus **Theoborus** Hopkins

Page 660 **Theoborus** Hopkins. Add:
KEYS: Wood, Stevens, & Lezama 1991b:292 (to Costa Rican species).
REFERENCES: (**tx**) Wood, Stevens, & Lezama 1991b:292.

Page 661 ***coartatus*** (Sampson). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:293. (**tx**) Wood, Stevens, & Lezama 1991b:293.

Page 661 ***incultus*** (Wood). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:292. (**tx**) Wood, Stevens, & Lezama 1991b:292.

Page 661 ***micarius*** (Wood). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:292. (**tx**) Wood, Stevens, & Lezama 1991b:292.

Page 661 ***molestulus*** (Wood). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:293. (**tx**) Wood, Stevens, & Lezama 1991b:293.

Page 661 ***pristis*** (Wood). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:292. (**tx**) Wood, Stevens, & Lezama 1991b:292.

Page 661 ***ricini*** (Eggers). Add:
DISTRIBUTION: AFRICA: Nigeria.
HOSTS: *Citrus* sp., *Gmelina arborea*, *Inga* sp.
REFERENCES: (**ds**) Medler 1980:291; Wood, Stevens, & Lezama 1991b:293. (**tx**) Wood, Stevens, & Lezama 1991b:293.

Page 661 *solitariceps* Schedl (synonym of ***ricini*** (Eggers)). Add:
REFERENCES: (**ds**) Atkinson & Peck 1994:322; Frank & McCoy 1992:6. (**hb**) Atkinson & Peck 1994:322.

Page 661 ***theobromae*** Hopkins. Add:
HOSTS: *Cestrum* sp., *Guarea* sp., *Miconia trinerva*.
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:292. (**tx**) Wood, Stevens, & Lezama 1991b:292.

Page 661 ***villosulus*** (Blandford). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:292. (**tx**) Wood, Stevens, & Lezama 1991b:292.

Page 662 *villosus* Schedl (synonym of ***villosulus*** (Blandford)). Add:
REFERENCES: (**ec**) Carrano-Moreira & Pedrosa-Macedo 1994.

Genus **Coptoborus** Hopkins

Page 662 ***adjunctus*** (Eggers). Move to **Premnobius**.

Page 662 ***bicolor*** (Browne). Add:
DISTRIBUTION: ASIA: Borneo.
HOSTS: *Dryobalanops* sp., *Shorea* sp.
REFERENCES: (**ds**) Ohno 1990c:87. (**tx**) Ohno 1990a:24.

Page 663 ***catulus*** (Blandford). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Oaxaca).
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:295. (**ec**) Carrano-Moreira & Pedrosa-Macedo 1994. (**tx**) Wood, Stevens, & Lezama 1991b:295.

Page 663 ***cuneatus*** (Eichhoff). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:295. (**tx**) Wood, Stevens, & Lezama 1991b:295.

Page 663 ***forficatus*** (Schedl). Add:
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: (**ds**) Medler 1980:291.

Page 663 ***longispinis*** Browne. Add:
DISTRIBUTION: ASIA: Borneo, Malaysia (Sarawak).
HOSTS: *Shorea* sp.
REFERENCES: (**ds**) Browne 1986c:662; Ohno 1990c:87. (**tx**) Ohno 1990a:24.

Page 664 ***pseudotenuis*** (Schedl). Add:
HOSTS: *Acacia pennatula, Cestrum* sp., *Dalium* sp., *Heliocarpus appendiculatus*.
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:464; Wood, Stevens, & Lezama 1991b:295. (**tx**) Wood, Stevens, & Lezama 1991b:295.

Page 664 ***tolimanus*** (Eggers). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Hidalgo, Oaxaca).
HOSTS: *Cordia* sp., *Heliocarpus appendiculatus*.
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:295. (**tx**) Wood, Stevens, & Lezama 1991b:295.

Page 664 ***usagaricus*** (Eggers). Add:
DISTRIBUTION: AFRICA: Nigeria.
HOSTS: *Parkia bicolor, Symphonia globulifera*.
REFERENCES: (**ds**) Medler 1980:291. (**hb**) Beaver & Löyttyniemi 1991.

Page 665 *fallaciosus* Schedl (synonym of ***usagaricus*** (Eggers)). Add:
REFERENCES: (**ds**) Schedl 1964j:42, 1966c:229.

Page 665 ***vespatorius*** (Schedl). Add:
HOSTS: *Cestrum* sp., *Inga* sp.
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:464; Wood, Stevens, & Lezama 1991b:295. (**tx**) Wood, Stevens, & Lezama 1991b:295.

Genus **Arixyleborus** Hopkins

Page 665 **Arixyleborus** Hopkins. Add:
KEYS: Ohno 1990a:24 (to intercepted species in Japan).
REFERENCES: (**tx**) Ohno 1990a:24.

Page 665 ***canaliculatus*** (Eggers). Add:
DISTRIBUTION: ASIA: Moluccas. OCEANIA: Bismarck Islands, Solomon Islands.

Page 665 *subsimilis* Schedl (synonym of ***canaliculatus*** (Eggers)). Add:
REFERENCES: (**tx**) Ohno 1990a:24.

Page 666 ***dipterocarpi*** Browne. Add:
REFERENCES: (**tx**) Ohno 1990a:25.

Page 666 ***grandis*** (Schedl). Add:
DISTRIBUTION: ASIA: Philippine Islands.
REFERENCES: (**tx**) Ohno 1990a:24.

Page 666 ***granifer*** (Eichhoff). Add:
DISTRIBUTION: ASIA: Indonesia (Sumatra), Philippine Islands.
HOSTS: *Agathis* sp., *Anisoptera* sp., *Canarium* sp., *Dipterocarpus* sp., *Octomeles* sp., Sapotaceae sp.
REFERENCES: **(ds)** Ohno 1990c:86. **(tx)** Ohno 1990a:25.

Page 666 ***granulifer*** (Eggers). Add:
DISTRIBUTION: ASIA: Celebes, Moluccas.
HOSTS: Many listed in Ohno 1990c:86.
REFERENCES: **(ds)** Ohno 1990c:86. **(tx)** Ohno 1990a:25.

Page 667 ***hirsutulus*** Schedl. Add:
DISTRIBUTION: ASIA: Borneo.
HOSTS: *Anisoptera* sp., *Artocarpus* sp., *Dipterocarpus* sp., *Dryobalanops* sp., Sapotaceae sp., *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990c:86. **(tx)** Ohno 1990a:25.

Page 667 ***imitator*** (Eggers). Add:
REFERENCES: **(tx)** Ohno 1990a:25.

Page 667 ***iriani*** Browne. Add:
DISTRIBUTION: ASIA: Moluccas.
REFERENCES: **(tx)** Ohno 1990a:24.

Page 667 ***magnus*** Browne. Add:
REFERENCES: **(tx)** Ohno 1990a:25.

Page 667 ***mediosectus*** (Eggers). Add:
DISTRIBUTION: ASIA: Borneo, Philippine Islands.
HOSTS: *Shorea* sp., *Toonia* sp.
REFERENCES: **(ds)** Ohno 1990c:86. **(tx)** Ohno 1990a:24.

Page 668 ***minor*** (Eggers). Add:
DISTRIBUTION: ASIA: Borneo.
REFERENCES: **(ds)** Ohno 1990c:86. **(tx)** Ohno 1990a:24.

Page 668 ***okadai*** Browne. Add:
REFERENCES: **(tx)** Ohno 1990a:25.

Page 668 ***puberulus*** (Blandford). Add:
HOSTS: *Canarium* sp., *Dipterocarpus* sp., *Dryobalanops* sp., *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990c:86. **(tx)** Ohno 1990a:25.

Page 668 ***rugosipes*** Hopkins. Add:
DISTRIBUTION: ASIA: Borneo, Cambodia, Celebes, Indonesia (Java, Sumatra), Malaysia, Moluccas, Sri Lanka, Vietnam.
HOSTS: Many listed in Ohno 1990c:86. Also: *Shorea* spp.
REFERENCES: **(ds)** Bain 1977b:17; Ohno 1990c:86. **(tx)** Ohno 1990a:25.

Page 669 ***scabripennis*** (Blandford). Add:
DISTRIBUTION: ASIA: Moluccas. OCEANIA: New Guinea.
REFERENCES: **(tx)** Ohno 1990a:24.

Page 669 ***suturalis*** (Eggers). Add:
REFERENCES: **(ds)** Ohno 1990c:86. **(tx)** Ohno 1990a:24.

Page 669 ***talauricus*** (Eggers). Add:
DISTRIBUTION: ASIA: Borneo, Moluccas.
HOSTS: *Balanocarpus heimii, Dryobalanops aromatica, D. oblongifolia, Shorea gysbertsiana, S. leprosula,* S. sp.
REFERENCES: **(cn)** Mathur & Singh 1961a:40; Yunus & Hua 1980:229. **(ds)** Browne 1961a:311; Mathur & Singh 1961a:40; Yunus & Hua 1980:229.

Genus **Ambrosiodmus** Hopkins

Page 670 ***adustus*** (Eggers). Add:
FIGURES: Nunberg 1963b:8, pl. 1.

Page 670 ***albizzianus*** (Schedl). Add:
REFERENCES: **(hb)** Beaver & Löyttyniemi 1991.

Page 670 ***apicalis*** (Blandford). Add:
REFERENCES: **(hb)** Osumi & Mizuno 1992.

Page 671 ***asperatus*** (Blandford). Add:
DISTRIBUTION: ASIA: Indonesia (Timor).
HOSTS: *Adenanthera pavonina, Artocarpus* sp. *Coffea arabica, Gmelina arborea, Grevillea robusta, Shorea leprosula.*
REFERENCES: **(cn)** Mathur & Singh 1960b:24. **(ds)** Browne 1972b:20; Mathur & Singh 1960b:24; Schedl 1971a:281. **(tx)** Schedl 1979c:28.

Page 671 ***brunneipes*** (Eggers). Add:
HOSTS: *Octomeles sumatrana, Parartocarpus* sp.
REFERENCES: **(ds)** Ohno 1990c:88.

Page 672 ***catharinensis*** (Eggers). Add:
REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Page 672 ***coffeiceus*** (Schedl). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Veracruz).
HOSTS: *Heliocarpus appendiculatus, Quercus* sp.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:464. **(hb)** Noguera-Martinez & Atkinson 1990:464.

Page 672 ***compressus*** (Lea). Add:
FIGURES: Zimmerman 1992:633 (adult).

Page 673 ***devexulus*** (Wood). Add:
DISTRIBUTION: NORTH AMERICA: **Dominica**.
REFERENCES: **(ds)** Atkinson & Peck 1994:322. **(hb)** Atkinson & Peck 1994:322.

Page 673 ***ferus*** (Wood). Add:
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:464. **(hb)** Noguera-Martinez & Atkinson 1990:464.

Page 674 ***funereus*** (Lea). Add:
DISTRIBUTION: ASIA: Nicobar Islands.
HOSTS: *Hevea brasiliensis, Octomeles sumatrana.*
REFERENCES: **(ds)** Ohno 1990c:90; Sukartana 1989b:38.

Page 674 ***hagedorni*** (Iglesias). Add:

HOSTS: *Esenbeckia pentaphylla, Ficus insipidia, Quararibea* sp., *Senna* sp., *Trema micrantha.*

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:295. **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994. **(tx)** Wood, Stevens, & Lezama 1991b:295.

Page 674 *guatemalensis* Hopkins (synonym of ***hagedorni*** (Iglesias)). Add:

REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:464. **(hb)** Noguera-Martinez & Atkinson 1990:464.

Page 674 *anisandrus* Schedl (synonym of ***hagedorni*** (Iglesias)). Add:

NOTES: Holotype designation by Schedl 1979c:21 invalid.

REFERENCES: **(tx)** Schedl 1979c:21.

Page 675 ***lecontei*** Hopkins. Add:

DISTRIBUTION: NORTH AMERICA: Jamaica. SOUTH AMERICA: Brazil.

HOSTS: *Delonix regia.*

REFERENCES: **(ds)** Atkinson & Peck 1994:322; Torres 1994a:26. **(hb)** Atkinson & Peck 1994:322.

Page 675 ***lewisi*** (Blandford). Add:

DISTRIBUTION: NORTH AMERICA: United States (Pennsylvania).

HOSTS: *Agathis* sp., *Anisoptera* sp., *Canarium* sp.

REFERENCES: **(ds)** Hoebeke 1991; Ohno 1990c:90.

Page 676 ***minor*** (Stebbing). Add:

HOSTS: *Canarium* sp., *Irvingia malayana.*

REFERENCES: **(ds)** Ohno 1990c:91.

Page 676 ***natalensis*** (Schaufuss). Add:

Holotype ♀; Natal; USNM, Washington.

DISTRIBUTION: AFRICA: Sudan.

HOSTS: *Macrolobium* sp.

REFERENCES: **(ds)** Schedl 1964e:69, 1965a:21, 1968b:145. **(tx)** Anderson & Anderson 1971:21; Schedl 1980:29.

Page 677 ***nodulosus*** (Eggers). Add:

HOSTS: *Anisoptera* sp., *Dipterocarpus* sp., *Octomeles sumatrana, Shorea* sp.

REFERENCES: **(ds)** Ohno 1990c:91.

Page 677 ***obliquecaudata*** Motschulsky. Add:

HOSTS: *Hevea brasiliensis.*

Page 677 ***obliquus*** (LeConte). Add:

DISTRIBUTION: NORTH AMERICA: Dominica, Mexico (Hidalgo, Oaxaca).

HOSTS: *Cephaelis* sp., *Senna* sp., *Trema micrantha.*

REFERENCES: **(ds)** Atkinson & Peck 1994:322; Wood, Stevens, & Lezama 1991b:296. **(hb)** Atkinson & Peck 1994:322. **(tx)** Wood, Stevens, & Lezama 1991b:296.

Page 679 ***rubricollis*** (Eichhoff). Add:
DISTRIBUTION: NORTH AMERICA: United States (South Carolina).
HOSTS: *Abies fabri, Alnus sibirica, Biota orientalis, Cinnamomum* sp., *Cunninghamia lanceolata, Diospyros kaki, Fraxinus chinensis, Ligustrum lucidum, Pinus merkusii, Populus* sp., *Prunus davidiana, Schima superba, Sophora japonica, Vitex negundo*.
REFERENCES: **(ds)** Hutacharern et al. 1988:48.

Page 680 ***rugicollis*** (Blandford). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Puebla, Veracruz).
HOSTS: *Quercus* sp.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:464. **(hb)** Noguera-Martinez & Atkinson 1990:464.

Page 680 ***rusticus*** (Wood). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Veracruz).
HOSTS: *Ficus elastica, Quercus* sp.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:464. **(hb)** Noguera-Martinez & Atkinson 1990:464.

Page 680 ***sakoae*** (Schedl). Add:
HOSTS: *Acacia* sp., *Poupartia caffra*.

Page 680 ***sarawakensis*** (Eggers). Add:
FIGURES: Nunberg 1978:116.
DISTRIBUTION: ASIA: Malaysia.
HOSTS: *Lophopetalum* sp., *Xanthophyllum* sp.

Page 680 ***scalaris*** (Schedl) Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:295. **(tx)** Wood, Stevens, & Lezama 1991b:295.

Page 680 ***tachygraphus*** (Zimmermann). Add:
DISTRIBUTION: NORTH AMERICA: United States (Florida, Ohio).
REFERENCES: **(hb)** Weber & McPherson 1991.

Page 681 ***triton*** (Schaufuss). Add:
HOSTS: *Ficus soroceoides, Pinus khasya, Vitex* sp.

Page 681 ***tropicus*** (Hagedorn). Add:
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: **(ds)** Medler 1980:291. **(hb)** Beaver & Löyttyniemi 1991.

Page 681 *upoluensis* (Schedl). Move to ***wilderi*** Beeson as a synonym.

Page 681 ***wilderi*** (Beeson). Add *upoluensis* (Schedl) as a synonym. Add:
REFERENCES: **(tx)** Beaver 1976b:542.

Genus **Amasa** Lea

Page 682 ***amputatus*** (Blandford). Add:
REFERENCES: **(ds)** Yin & Huang 1993. **(tx)** Yin & Huang 1993.

Page 684 ***sirambeanus*** (Eggers). Add:
DISTRIBUTION: OCEANIA: New Guinea.
REFERENCES: **(ds)** Schedl 1962i:72.

Page 685 ***truncatus*** (Erichson). Add:
FIGURES: Kuschel 1990:100 (adult).
DISTRIBUTION: OCEANIA: New Zealand.
HOSTS: *Kunzea ericoides.*
REFERENCES: **(ds)** Kuschel 1990:76; Naumann 1993:161.

Add species: ***aglaiae*** (Browne). From **Xyleborus**. Add:
REFERENCES: **(tx)** Beaver 1995:202.

nakazawai (Browne). From **Xyleborus**. Add:
REFERENCES: **(tx)** Beaver 1995:202.

Genus **Euwallacea** Hopkins

Page 685 ***andamanensis*** (Blandford). Add:
REFERENCES: **(ds)** Bain 1977b:16.

Page 686 ***artelaevis*** (Schedl). Change holotype depository to NHMW.

Page 686 *barbatulus* (Schedl). Move to ***destruens*** (Blandford) as a synonym. Lectotype examined (DEB). **NEW SYNONYMY.**

Page 686 *barbatus* (Hagedorn). Move to ***destruens*** (Blandford) as a synonym. Types examined (DEB). **NEW SYNONYMY.**

Page 687 ***bicolor*** (Blandford). Add:
HOSTS: Annonaceae sp., *Dyera* sp.
REFERENCES: **(ds)** Ohno 1990c:88.

Page 687 *bicolor unimodus* Beeson (synonym of ***bicolor*** (Blandford)). Add:
REFERENCES: **(ds)** Beaver 1976b:542. **(hb)** Beaver 1976b:542.

Page 687 ***destruens*** (Blandford). Add *barbatulus* (Schedl) and *barbatus* (Hagedorn) as synonyms. Add:
FIGURES: Zimmerman 1992:623 (adult).
HOSTS: *Gonystylus* sp., *Homalium* sp., *Octomeles sumatrana, Parartocarpus* sp., *Parishia* sp., *Vatica* sp.
REFERENCES: **(cn)** Sri Esti Intari & Teguh Hardi TW 1990. **(ds)** Ohno 1990c:89.

Page 688 ***fornicatus*** (Eichhoff). Add:
DISTRIBUTION: ASIA: India, "See CIE map 319". OCEANIA: Hawaiian Islands (Hawaii, Kauai, Maui, Molokai, Ohau).
FIGURES: Booth, Cox, & Madge 1990:199 (adult).
HOSTS: Avocado, citrus, cocoa, *Paraserianthes falcataria,* Pomegranate, rambutan, tea.
REFERENCES: **(cn)** Mathew & Nair 1985; Mote 1991; Mote & Tambe 1990, 1992; Muraleedharan, Radhakrishnan, & Selvasundaram 1992. **(ds)** Booth, Cox, & Madge 1990:197; Mathew & Nair 1985; Mote 1991; Nishida 1992:74; Sukartana 1989b:38; Wood, Stevens, & Lezama 1991b:294. **(ec)** Booth, Cox, & Madge 1990:197; Mouli & Kumar 1988. **(hb)** Booth, Cox, & Madge 1990:197; Luo & He 1990. **(ms)** Mote & Tambe 1992. **(tx)** Wood, Stevens, & Lezama 1991b:294.

Page 690 ***interjectus*** (Blandford). Add:
FIGURES: Xiao 1992:639 (adult).

DISTRIBUTION: ASIA: China. OCEANIA: Hawaiian Islands (Oahu).
HOSTS: *Ailanthus integrifolia, Anisoptera* sp., *Antiaris* sp., *Dipterocarpus* sp., *Dyera* sp., *Endospermum ?medullosum, Instia* sp., *Koompassia malaccensis, Octomeles sumatrana, Parartocarpus* sp., *Pometia* sp., *Pterygota horsfieldii,* Sapotaceae sp., *Scaphium* sp., *Trichadenia philippinensis*.
REFERENCES: **(ds)** Nishida 1992:74; Ohno 1990c:90; Sukartana 1989b:38; Xiao 1992:639; Yin & Huang 1993. **(tx)** Xiao 1992:639; Yin & Huang 1993.

Page 691 ***laevis*** (Eggers). Add:
REFERENCES: **(ds)** Ohno 1990c:90.

Page 691 ***limatus*** (Schedl). Add:
HOSTS: *Eugenia* sp.
REFERENCES: **(ds)** Schedl 1966b:58. **(tx)** Nobuchi 1983:303.

Page 692 ***piceus*** (Motschulsky). Add:
FIGURES: Zimmerman 1992:637 (adult).
HOSTS: *Ailanthus integrifolia, Anisoptera* sp., *Antiaris* sp., *Canarium* sp., *Dipterocarpus* sp., *Gonystylus* sp., *Hydnocarpus* sp., *Octomeles sumatrana, Parartocarpus* sp., *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990c:90.

Page 693 ***quadraticollis*** (Eggers). Add:
HOSTS: *Octomeles sumatrana.*
REFERENCES: **(ds)** Ohno 1990c:90.

Page 693 ***sibsagaricus*** (Eggers). Add:
HOSTS: *Dipterocarpus* sp., *Dryobalanops* sp., *Shorea* sp.

Page 693 *dalbergiae* Eggers (synonym of ***sibsagaricus*** (Eggers)). Add:
REFERENCES: **(ds)** Ohno 1990c:89.

Page 694 ***validus*** (Eichhoff). Add:
HOSTS: *Pinus thunbergii.*
REFERENCES: **(ds)** Lee et al. 1990:17; Wood 1982:810. **(ec)** Nakasima et al. 1992:242; Shibata, Waguchi, & Yoneda 1994. **(hb)** Shibata, Waguchi, & Yoneda 1994; Wood 1982b:810. **(tx)** Wood 1982b:810.

Page 694 ***velatus*** (Sampson). Add:
DISTRIBUTION: ASIA: **Borneo**.

Page 695 ***xanthopus*** (Eichhoff). Add:
REFERENCES: **(hb)** Beaver & Löyttyniemi 1991.

Add species: ***kersianus*** (Browne). From **Xyleborus**. Add:
REFERENCES: **(tx)** Beaver 1995:203.

murudensis (Browne). From **Xyleborus**. Add:
REFERENCES: **(tx)** Beaver 1995:203.

viruensis (Browne). From **Xyleborus**. Add:
REFERENCES: **(tx)** Beaver 1995:203

Genus **Cyclorhipidion** Hagedorn

Page 697 ***agnatum*** (Eggers). Add ***nutans*** Schedl as a synonym. Add:
FIGURES: Zimmerman 1992:633 (adult).
HOSTS: *Calophyllum* sp., *Canarium* sp., *Combretocarpus* sp., *Cratoxylum arborescens*, *Dactylocladus stenostachys*, *Dipterocarpus* sp., *Durio* sp., *Kokoona* sp., *Parishia* sp., Sapotaceae sp., *Tarrietia* sp.
REFERENCES: **(ds)** Ohno 1990c:87,90

Page 698 ***circumcisum*** (Sampson). Add:
HOSTS: *Canarium* sp.
REFERENCES: **(ds)** Ohno 1990c:88

Page 698 ***crucifer*** (Hagedorn). Add:
REFERENCES: **(hb)** Beaver & Löyttyniemi 1991

Page 700 ***hastatum*** (Schedl). Add:
HOSTS: *Dryobalanops* sp., *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990c:90

Page 700 ***kelantanum*** (Schedl). Add:
HOSTS: *Dipterocarpus* sp., *Dryobalanops* sp.
REFERENCES: **(ds)** Ohno 1990c:90

Page 700 ***mangoense*** (Schedl). Change holotype depository to NHMW

Page 700 *nutans* (Schedl). Move to ***agnatum*** (Eggers) as a synonym. Lectotype examined (DEB). **NEW SYNONYMY**

Page 701 ***perpilosellum*** (Schedl). Add *punctatopilosum* Schedl as a synonym

Page 701 ***planotrunctatum*** (Schedl). Change holotype depository to NHMW

Page 701 ***polyodon*** (Eggers). Add:
DISTRIBUTION: ASIA: Malaysia **(Sarawak)**

Page 701 ***popondettae*** (Browne). Move to **Coptodryas**.

Page 701 ***pruinosum*** (Blandford). Add:
REFERENCES: **(ds)** Ohno 1990c:90.

Page 702 *punctatopilosum* (Schedl). Move to ***perpilosellum*** (Schedl) as a synonym. Types examined (DEB). **NEW SYNONYMY.**

Page 702 ***punctilicolle*** (Schedl). Change holotype depository to NHMW.

Page 702 ***scapulare*** (Schedl). Change holotype depository to NHMW.

Page 702 ***scorpium*** (Schedl). Change holotype depository to NHMW.

Page 702 ***sexspinatum*** (Schedl). Add:
HOSTS: *Dipterocarpus* sp., *Dryobalanops* sp., *Sandricum* sp., *Tarrietia* sp., *Vatica* sp.
REFERENCES: **(ds)** Ohno 1990c:90.

Page 703 ***subagnatum*** Wood. Add:
HOSTS: *Agathis* sp., Sapotaceae sp.
REFERENCES: **(ds)** Ohno 1990c:90.

Add species: ***canarii*** (Browne). From **Xyleborus**. Add:
REFERENCES: (**tx**) Beaver 1995:202.

leverensis (Browne). From **Xyleborus**. Add:
REFERENCES: (**tx**) Beaver 1995:202.

malayensis (Browne). From **Xyleborus**. Add:
REFERENCES: (**tx**) Beaver 1995:202.

multipunctatum (Browne). From **Xyleborus**. Add:
HOSTS: *Canarium* sp.
REFERENCES: (**ds**) Ohno 1990c:91. (**tx**) Beaver 1995:202.

pruinosulum (Browne). From **Xyleborus**. Add:
REFERENCES: (**tx**) Beaver 1995:203.

quasimodo (Browne). From **Xyleborus**. Add:
REFERENCES: (**tx**) Beaver 1995:203.

subpruinosum (Browne). From **Xyleborus**. Add:
REFERENCES: (**tx**) Beaver 1995:203.

Genus **Xyleborus** Eichhoff

Page 704 **Xyleborus** Eichoff. Add:
KEYS: Atkinson, Rabaglia, & Bright 1990 (to eastern North American species); Hobson & Bright 1994 (to Californian species); Lombardero 1994:343 (to species in northwest Spain); Pfeffer 1994a:176 (to Central European species), 1994c:201 (to Palearctic species); Wood, Stevens, & Lezama 1991b:293 (to Costa Rican species).
REFERENCES: (**bv**) Norris 1993. (**ds**) Basset 1991. (**hb**) Norris 1993. (**tx**) Atkinson, Rabaglia, & Bright 1990; Hobson & Bright 1994; Holzschuh 1994; Lombardero 1994:343; Pfeffer 1994a:176, 1994c:20; Wood, Stevens, & Lezama 1991b:293.

Page 705 ***abscissus*** Browne. Add:
HOSTS: *Anisoptera* sp., Annonaceae sp. *Canarium* sp., *Combretocarpus* sp., *Dactylocladus stenostachys, Dipterocarpus* sp., *Dryobalanops* sp., *Dyera* sp., *Octomeles sumatrana, Vatica* sp.
REFERENCES: (**ds**) Ohno 1990c:87.

Page 705 ***acanthurus*** (Lea). Add:
FIGURES: Zimmerman 1992:631 (adult).

Page 706 ***adelographus*** Eichhoff. Add:
REFERENCES: (**ec**) Carrano-Moreira & Pedrosa-Macedo 1994.

Page 706 ***affinis*** Eichhoff. Add:
DISTRIBUTION: EUROPE: Hungary (introduced). OCEANIA: Hawaiian Islands (Hawaii, Kauai, Maui, Oahu).
HOSTS: Many listed in Ohno 1990c:87. Also: *Aldina heterophylla, Andira inermis, Anocordium spruceanum, Anthocephalus chinensis, Cajanus cajan, Catostemma scheraphylum, Cecropia peltata, Cedrela odorata, Cedrelinga catenaeformis, Chefflera morototoni, Clarisla racemosa, Dialium guianense, Dracaena fragrans, Enterolobium schomburgkii, Eugenia malaccensis, Hymenolobium excelsum, Inga vera, I. fagifolia, Leucaenia pulverulenta, Macadamia*

integrifolia, Mangifera indica, Manikara huberi, Mazilaurus itauba, Ocotea cymbarum, Ormosia sp., *Pinus caribaea, Rheedia* sp., *Sloanea berteriana, Spathodea campanulata.*

REFERENCES: (**bv**) Bunce & McLean 1990; Maia 1988. (**cn**) Carrai 1992; Chang 1993; Di et al. 1991; Maia 1988. (**ds**) Abreu 1992; Atkinson & Peck 1994:323; Booth, Cox, & Madge 1990:198; Carrai 1992; Equihua-Martinez 1992:60; Herrera & Grillo 1989; Merkl & Tushadi 1992; Nishida 1992:74; Ohno 1990c:87; Schedl 1970c; Torres 1994a:25; Wood, Stevens, & Lezama 1991b:299. (**ec**) Bunce & McLean 1990; Carrano-Moreira & Pedrosa-Macedo 1994; Di et al. 1991. (**hb**) Abreu 1992; Atkinson & Peck 1994:323; Beaver & Löyttyniemi 1991; Booth, Cox, & Madge 1990:198; Maia 1988; Weber & McPherson 1991. (**tx**) Booth, Cox, & Madge 1990:198; Wood, Stevens, & Lezama 1991b:299.

Page 709 ***africanus*** Eggers. Add:

REFERENCES: (**hb**) Beaver & Löyttyniemi 1991.

Page 709 ***agamus*** Perkins. Add:

DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii, Lanai, Maui).

REFERENCES: (**ds**) Nishida 1992:74.

Page 709 ***aglaiae*** Browne. Move to **Amasa**.

Page 709 ***alluaudi*** Schaufuss. Add:

REFERENCES: (**ds**) Booth, Cox, & Madge 1990:198. (**hb**) Beaver & Löyttyniemi 1991; Booth, Cox, & Madge 1990:198. (**tx**) Booth, Cox & Madge 1990:198.

Page 710 ***amanicus*** Hagedorn. Add:

DISTRIBUTION: AFRICA: Nigeria.

REFERENCES: (**ds**) Medler 1980:291; Schedl 1965g:20.

Page 711 ***ambasiusculus*** Eggers. Add:

DISTRIBUTION: AFRICA: Nigeria.

REFERENCES: (**ds**) Medler 1980:291.

Page 711 ***amphicauda*** Browne. Move to **Coptodryas**.

Page 711 ***amphicranoides*** Hagedorn. Add:

HOSTS: *Ailanthus integrifolia, Octomeles sumatrana, Pterygota horsfieldii, Scaphium* sp.

REFERENCES: (**ds**) Ohno 1990c:87.

Page 711 *amphricranoides* var. *latecavatus* Eggers (synonym of ***amphicranoides*** Hagedorn). Add:

Lectotype ♀; Mount Banahao, Luzon; USNM, Washinghton, designated by Anderson & Anderson 1971:17.

REFERENCES: (**tx**) Anderson & Anderson 1971:17; Nobuchi 1983:302.

Page 711 *amphicranoides parvior* Browne (synonym of ***amphicranoides*** Hagedorn). Add:

REFERENCES: (**ds**) Ohno 1990c:87.

Page 711 ***amplexicauda*** Hagedorn. Add:

HOSTS: *Anisoptera* sp., *Dipterocarpus* sp., *Vatica* sp.

REFERENCES: **(ds)** Ohno 1990c:87.

Page 712 *apertus* Schedl. Move to ***perforans*** (Wollaston) as a synonym. Lectotype examined (DEB). **NEW SYNONYMY.**

Page 712 ***apiculatus*** Schedl. Change holotype depository to NHMW.

Page 712 ***arcturus*** Samuelson. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii).
REFERENCES: **(ds)** Nishida 1992:74.

Page 713 ***asper*** Eggers. Add:
DISTRIBUTION: SOUTH AMERICA: Tobago.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:296. **(tx)** Wood, Stevens, & Lezama 1991b:296.

Page 713 ***atratus*** Eichhoff. Add:
DISTRIBUTION: NORTH AMERICA: United States (Florida).
REFERENCES: **(ds)** Frank & McCoy 1992:6. **(hb)** Carrano-Moreira, Berisford, & Dalusky 1993.

Page 715 ***bidentatus*** (Motschulsky). Add:
HOSTS: *Alstonia* sp., *Dactylocladus stenostachys*, *Dryobalanops* sp., *Dyera* sp., *Koompassia malaccensis*, *Scaphium* sp., *Sindora* sp., *Upuna borneensis*.
REFERENCES: **(ds)** Ohno 1990c:88.

Page 716 ***borneensis*** Browne. Move to **Coptodryas**.

Page 716 ***brunneus*** Browne. Move to **Coptodryas**.

Page 716 ***californicus*** Wood. Add:
REFERENCES: **(ds)** Hobson & Bright 1994:267.

Page 716 ***canarii*** Browne. Move to **Cyclorhipidion**.

Page 716 ***canarivorus*** Browne. Add:
DISTRIBUTION: OCEANIA: Bismarck Island.
REFERENCES: **(ds)** Ohno et al. 1989:61.

Page 717 ***caraibicus*** Eggers. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:296. **(tx)** Wood, Stevens, & Lezama 1991b:296.

Page 717 ***cavuloides*** Browne. Add:
REFERENCES: **(ds)** Ohno et al. 1989:61.

Page 717 ***celsus*** Eichhoff. Add:
REFERENCES: **(ec)** Triplehorn 1990:289. **(hb)** Weber & McPherson 1991.

Page 718 ***ciliatoformis*** Schedl. Add:
HOSTS: *Vatica* sp.
REFERENCES: **(ds)** Ohno et al. 1989:61.

Page 718 ***clerodendronae*** Schedl. Add:
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: **(ds)** Medler 1980:291.

Page 719 ***cognatus*** Blandford. Add:
HOSTS: Many listed in Ohno 1990c:88.
REFERENCES: **(ds)** Ohno et al. 1989:61.

Page 719 ***commixtus*** Blandford. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:296. **(tx)** Wood, Stevens, & Lezama 1991b:296.

Page 719 ***concentus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:297. **(tx)** Wood, Stevens, & Lezama 1991b:297.

Page 720 ***costaricensis*** Blandford. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:298. **(tx)** Wood, Stevens, & Lezama 1991b:298.

Page 721 ***costatomorphus*** Schedl. Add:
HOSTS: *Dipterocarpus* sp., *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990c:88.

Page 721 ***cribripennis*** Egger. Add:
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: **(ds)** Medler 1980:291.

Page 721 ***crinitulus*** Wood. Move to **Theoborus**. Add:
REFERENCES: **(ds)** Wood 1982b:774; Wood, Stevens, & Lezama 1991b:293. **(tx)** Wood 1982b:774; Wood, Stevens, & Lezama 1991b:293.

Page 721 ***cryptographus*** (Ratzeburg). Add:
FIGURES: Lekander 1968:171 (larval characters); Pfeffer 1994c:289 (habitus).
DISTRIBUTION: EUROPE: Switzerland.
HOSTS: *Populus alba, P. nigra, P. tremula*.
REFERENCES: **(an)** Lekander 1968:72. **(ds)** Adam 1992:217; Balazy & Michalski 1962a:203; Burakowski, Mroczkowski, and Stefanska 1992:99; Gogniat 1991:27; Hansen et al. 1994:88; Pfeffer 1994c:202. **(hb)** Balazy & Michalski 1992a:203; Koch 1992:168. **(tx)** Burakowski, Mroczkowski, and Stefanska 1992:99; Lekander 1968; Pfeffer 1994a:176, 1994c:202,204.

Page 723 ***cylindromorphus*** Eggers. Add:
HOSTS: *Anisoptera* sp., *Dipterocarpus* sp., *Dryobalanops* sp., *Hopea* sp., *Vatica* sp.
REFERENCES: **(ds)** Ohno 1990c:88.

Page 723 *cylindrus* Schedl. Move to ***perforans*** (Wollaston) as a synonym. Lectotype examined (DEB). **NEW SYNONYMY.**

Page 723 ***declivis*** Eichhoff. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Oaxaca).
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:299. **(tx)** Wood, Stevens, & Lezama 1991b:299.

Page 723 ***demissus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:298. **(tx)** Wood, Stevens, & Lezama 1991b:298.

Page 724 ***dentipennis*** Browne. Move to **Coptoborus**.

Page 725 ***discretus*** Eggers. Add:

DISTRIBUTION: NORTH AMERICA: Mexico (Veracruz).

HOSTS: *Dialium guianense, Heliocarpus appendiculatus, Inga* sp., *Schizolobium parahybum.*

REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:464; Wood, Stevens, & Lezama 1991b:297. (**tx**) Wood, Stevens, & Lezama 1991b:297.

Page 725 ***dispar*** (Fabricius). Add:

FIGURES: Joly 1977:8 (gallery); Lekander 1968:170 (larval characters); Lombardero 1994:344, Plate 7 (adult features, aedeagus, gallery); Pfeffer 1994c:289 (habitus); Wilson & Becker 1960:87.

DISTRIBUTION: EUROPE: Poland, United Kingdom.

HOSTS: *Acer campestre, Aesculus hippocastanum, Alnus glutinosa, A. incana, Betula pubescens, B. verrucosa, Carpinus betulus, Castanea sativa, C. vesca, Corylus avellana, Fagus sylvatica, Fraxinus excelsior, Juglans regia, Juniperus* sp., *Koelreutereria paniculata, Persica vulgaris, Pinus sylvestris, Platanus occidentalis, P. orientalis, Populus tremula, Prunus armeniaca, P. avium, P. cerasus, P. domestica, P. insitiata, P. padus, P. persica, Pyrus communis, P. malus, Quercus pedunculatus, Q. rubra, Q. sessiliflora, Rhamnus carthartica, R. frangula, Robinia pseudoacacia, Sambucus nigra, Sorbus terminalis, Thujae occidentalis, T. orientalis, Tilia parvifolia, Ulmus campestris, Vitis vinifera.*

REFERENCES: (**an**) Lekander 1968:69. (**bv**) Dominik 1986; Dunn & Potter 1991:428; Schroeder 1991; Tsankov & Ganchev 1988. (**cn**) Anonymous 1992c; Campbell, Sarazin, & Lyons 1989:277; Dominik & Kinelski 1985; Dunn & Potter 1991:428; Hyman 1992:404; Mani, Remund, & Schwaller 1990a, 1990b, 1992; Tsankov & Ganchev 1988; Tyeryent'ev & Stolyarova 1989. (**ds**) Adam 1992:217; Balazy & Michalski 1962a:202; Burakowski et al. 1992:100; Campbell, Sarazin, & Lyons 1989:277; Fernandez Fernandez 1992:525; Gogniat 1991:27; Halstead 1994:170; Heliövaara, Väisänen, & Immonen 1991; Hyman 1992:404; József 1992; Laplante et al. 1991:116; Larochelle 1979:50; Lombardero 1994:344; Mani, Remund, & Schwaller 1990a, 1990b, 1992; Michalski & Ratajczak 1994; Papp 1984:294; Parsons et al. 1991:59; Pfeffer 1994c:201; Schott 1986:58; Titovsek 1983:415. (**ec**) Campbell, Sarazin, & Lyons 1989:277; Canganella, Paparatti, & Natali 1994; Hyman 1992:404; Michalski & Ratajczak 1994; Michalski, Kaczmarek, & Ratajczak 1992b:145; Natali, Paparatti, & Canganella 1994. (**hb**) Balazy & Michalski 1962a:202; Campbell, Sarazin, & Lyons 1989:277; Koch 1992:168; Lombardero 1994:344; Mani, Remund, & Schwaller 1990a, 1990b, 1992; Papp 1984:294. (**tx**) Burakowski et al. 1992:100; Lekander 1968; Lombardero 1994:344; Pfeffer 1994a:176, 1994c:201,205.

Page 729 *pyri* Peck (synonym of ***dispar*** (Fabricius)). Add:

REFERENCES: (**ds**) Dearborn & Donahue 1993:81.

Page 729 *tachygraphus* Sahlberg (synonym of ***dispar*** (Fabricius)). Add:

REFERENCES: (**hb**) Weber & McPherson 1991.

Page 730 ***dissimulatus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:297. **(tx)** Wood, Stevens, & Lezama 1991b:297.

Page 731 ***dolosus*** Blandford. Add:

HOSTS: *Anisoptera* sp., Annoaceae sp., *Buchanania* sp., *Canarium* sp., *Dryobalanops* sp., *Hopea* sp., *Octomeles sumatrana*, *Palaquium* sp., Sapotaceae sp., *Sindora* sp., *Upuna borneensis*, *Vatica* sp.

REFERENCES: **(ds)** Ohno 1990c:89.

Page 730 ***dryographus*** (Ratzeburg). Add:

FIGURES: Lombardero 1994:352, Plate 8 (adult features, gallery); Pfeffer 1994c:288 (elytral declivity).

DISTRIBUTION: ASIA: Iran. EUROPE: Portugal, S. Russia (Caucasus), Ukraine.

HOSTS: *Acer* sp., *Aesculus hippocastanum*, *Carpinus betulus*, *Castanea sativa*, *C. vesca*, *Fagus sylvatica*, *Quercus castaneifolia incana*, *Q. cerris*, *Q. ilex*, *Q. pedunculata*, *Q. petaea*, *Q. pubescens*, *Q. robur*, *Q. sessiliflora*, *Tilia* sp., *Ulmus effusa*, *U. glabra*.

REFERENCES: **(cn)** Georgescu, Teodoru, & Badea 1945; Hyman 1992:405. **(ds)** Adam 1992:217; Balazuc 1984:310; Burakowski et al. 1992:101; Hyman 1992:405; Lombardero 1994:350; Lombardero & Novoa 1994; Pfeffer 1994c:204; Schott 1986:58; Titovsek 1983: 415. **(ec)** Georgescu, Teodoru, & Badea 1945; Hyman 1992:405. **(hb)** Koch 1992:169. **(tx)** Burakowski et al. 1992:101; Lombardero 1994:350; Pfeffer 1994a:177, 1994c:204,206.

Page 732 ***dubiosus*** Perkins. Add:

DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii, Lanai, Maui, Molokai, Oahu).

REFERENCES: **(ds)** Nishida 1992:74.

Page 733 ***elongatus*** Eggers. Add:

DISTRIBUTION: AFRICA: Nigeria.

REFERENCES: **(ds)** Medler 1980:291.

Page 733 ***emarginatus*** Eichhoff. Add:

HOSTS: Many listed in Ohno 1990c:89.

REFERENCES: **(ds)** Ohno 1990c:89.

Page 733 ***eurygraphus*** (Ratzeburg). Add:

FIGURES: Lombardero 1994:356, Plate 8 (adult features, gallery); Pfeffer 1994c:276 (habitus).

DISTRIBUTION: EUROPE: Czechoslovakia, Greece, Poland, Sweden (introduced).

HOSTS: *Pinus brutia*, *P. halepensis*, *P. nigra*, *P. nigra austriaca*, *P. nigra cevennensis*, *P. nigra laricio*, *P. nigra pallasiana*, *P. pinaster*, *P. pinea*, *P. radiata*, *P. sylvestris*, *Quercus suber*.

REFERENCES: **(ds)** Burakowski et al. 1992:102; Gillerfors 1988: 43; Lombardero 1994:351; Pfeffer 1994c:203. **(ec)** Markalas 1991: 74. **(hb)** Koch 1992:168. **(tx)** Burakowski et al. 1992:102; Lombardero 1994:351; Pfeffer 1994a:177, 1994c:203,205.

Page 734 ***exaratus*** Blandford. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:293. **(tx)** Wood, Stevens, & Lezama 1991b:293.

Page 734 ***eximius*** Schedl. Add:
HOSTS: *Anisoptera* sp., *Dipterocarpus* sp.
REFERENCES: **(ds)** Ohno 1990c:89.

Page 735 ***exsectus*** Perkins. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Maui).
REFERENCES: **(ds)** Nishida 1992:74.

Page 735 ***fallax*** Eichhoff. Add:
HOSTS: Many listed in Ohno 1990c:89. Also: *Agathis* sp.
REFERENCES: **(ds)** Ohno 1990c:89.

Page 735 ***ferox*** Blandford. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:295. **(tx)** Wood, Stevens, & Lezama 1991b:295.

Page 735 ***ferrugineus*** (Fabricius). Add:
FIGURES: Zimmerman 1992:633 (adult).
DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii, Kauai, Lanai, Maui, Molokai, Oahu); Tonga (Tongatapu). SOUTH AMERICA: Tobago.
HOSTS: Many listed by Ohno 1990c:90. Also: *Aldina heterophylla, Andira inermis, Anocordium spruceanum, Cajanus cajan, Cecropia obtusifolia, C. peltata, Cedrelinga catenaeformis, Cedrela odorata, Clarisla racemosa, Cotostema scheraphylum, Dialium guianense, Enterolobium schomburgkii, Guarea* sp, *Heliocarpus appendiculatus, Hymenolobium excelsum, Inga* sp., *Macadamia integrifolia, Manikara itauba, Ocotea cymbarum, Ormosia* sp., *Pinus caribaea, Quercus* sp., *Rheedia* sp., *Schefflera morototoni, Sloanea berteriana, Spathodea campanulata.*
REFERENCES: **(bv)** Maia 1988. **(cn)** Chang 1993; Maes 1992:13; Maia 1988; Mote 1991; Mote & Tambe 1990. **(ds)** Abreu 1992; Atkinson & Peck 1994:323; Bain 1977b:17; Beaver 1987b:65; Booth, Cox, & Madge 1990:197; Equihua-Martinez 1992:60; Fiorentino, Iturre de Toscano, & Darchuk de Durant 1988; Herrera & Grillo 1989; Mote 1991; Nishida 1992:74; Noguera-Martinez & Atkinson 1990:464; Ohno 1990c:90; Torres 1994a:25; Wood, Stevens, & Lezama 1991b:299. **(ec)** Booth, Cox, & Madge 1990:197; Carrano-Moreira & Pedrosa-Macedo 1994. **(hb)** Abreu 1992; Atkinson & Peck 1994:323; Beaver & Löyttyniemi 1991; Booth, Cox, & Madge 1990:197; Carrano-Moreira, Berisford, & Dalusky 1993; Luo & He 1990; Maia 1988; Norris & Chu 1985; Sukartana 1989a; Weber & McPherson 1991. **(tx)** Booth, Cox, & Madge 1990:197; Wood, Stevens, & Lezama 1991b:299.

Page 739 *rufopiceus* Eggers (synonym of ***ferrugineus*** (Fabricius)).
REFERENCES: **(hb)** Beaver & Löyttyniemi 1991.

Page 740 ***geayi*** Hagedorn. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:298. **(tx)** Wood, Stevens, & Lezama 1991b:298.

Page 741 ***glabratulus*** Browne. Add:
HOSTS: *Dryobalanops* sp.
REFERENCES: **(ds)** Ohno 1990c:90.

Page 741 ***granatus*** Schedl. Add:
FIGURES: Zimmerman 1992:633 (adult).

Page 741 ***grandis*** Eichhoff. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:298. (**tx**) Wood, Stevens, & Lezama 1991b:298.

Page 741 ***gratus*** Schedl. Change holotype depository to NHMW.

Page 742 ***hashimotoi*** Browne. Add:
DISTRIBUTION: OCEANIA: Bismarck Island.
REFERENCES: (**ds**) Ohno et al. 1988a:94, 1989:62.

Page 742 ***hatanakai*** Browne. Add:
HOSTS: *Dryobalanops* sp., *Shorea* sp.
REFERENCES: (**ds**) Ohno 1990c:90.

Page 742 ***hawaiiensis*** Perkins. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii, Kauai, Lanai, Maui, Oahu).
REFERENCES: (**ds**) Nishida 1992:74.

Page 742 ***hiiaka*** Samuelson. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii).
REFERENCES: (**ds**) Nishida 1992:74.

Page 742 ***horridatus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:294. (**tx**) Wood, Stevens, & Lezama 1991b:294.

Page 743 ***horridulus*** Browne. Move to **Xyleborinus**.

Page 743 ***horridus*** Eichhoff. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Campeche, Tamaulipas**).
HOSTS: *Alchornea* sp., *Inga* sp., *Zygia* sp.
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:464.

Page 743 ***ignobilis*** Perkins. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii, Lanai, Maui, Oahu).
REFERENCES: (**ds**) Nishida 1992:74.

Page 743 ***imbellis*** Blandford. Add:
HOSTS: *Inga* sp.
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:464; Wood 1982b:826. (**tx**) Wood 1982b:826.

Page 744 ***improvidus*** Schedl. Add:
REFERENCES: (**ds**) Wood, Stevens & Lezama 1991b:297. (**tx**) Wood, Stevens & Lezama 1991b:297.

Page 744 ***insignis*** Browne. Add:
REFERENCES: (**ds**) Ohno 1990c:90.

Page 744 ***insulindicus*** Eggers. Add:
FIGURES: Zimmerman 1992:635 (adult).

Page 745 ***intrusus*** Blandford. Add:
REFERENCES: **(bv)** Bunce & McLean 1990. **(cn)** Maes 1992:13. **(ec)** Bunce & McLean 1990. **(hb)** Weber & McPherson 1991.

Page 745 ***ishidai*** Niisima. Add:
REFERENCES: **(ec)** Nakasima et al. 1992:242.

Page 746 ***javanus*** Eggers. Add:
HOSTS: *Anisoptera* sp., *Gmelina arborea*.
REFERENCES: **(ds)** Ohno 1990c:90.

Page 746 ***justus*** Schedl. Add:
HOSTS: *Canarium* sp., *Dipterocarpus* sp., *Shorea* sp., *Vatica* sp.
REFERENCES: **(ds)** Ohno 1990c:90.

Page 746 ***katangensis*** Eggers. Add:
REFERENCES: **(hb)** Beaver & Löyttyniemi 1991.

Page 746 *katoi* Browne. Move to ***subdentatus*** Browne as a synonym. Add:
SYNONYMY: Beaver 1995:199.
REFERENCES: **(ds)** Ohno 1990c:90.

Page 746 ***kauaiensis*** Perkins. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii, Kauai, Oahu).
REFERENCES: **(ds)** Nishida 1992:74.

Page 747 ***kersianus*** Browne. Move to **Euwallacea**.

Page 747 ***lacunatus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:297. **(tx)** Wood, Stevens, & Lezama 1991b:297.

Page 747 ***lanaiensis*** Perkins. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii, Lanai, Oahu).
REFERENCES: **(ds)** Nishida 1992:74.

Page 747 ***lativentris*** Schedl. Change holotype depository to NHMW.

Page 748 ***leverensis*** Browne. Move to **Cyclorhipidion**.

Page 748 ***littoralis*** Perkins. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Molokai).
REFERENCES: **(ds)** Nishida 1992:74.

Page 748 ***macer*** Blandford. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:300. **(tx)** Wood, Stevens, & Lezama 1991b:300.

Page 749 ***macropterus*** Schedl. Add:
HOSTS: *Dipterocarpus* sp., *Dryobalanops* sp., *Hopea* sp., Sapotaceae sp., *Vatica* sp.
REFERENCES: **(ds)** Ohno 1990c:91. **(tx)** Nobuchi 1983:303.

Page 749 ***malayensis*** Browne. Move to **Cyclorhipidion**.

Page 750 ***mascareniformis*** Eggers. Add:
REFERENCES: **(ds)** Schedl 1970c.

Page 750 ***mauiensis*** Perkins. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Maui, Molokai).
REFERENCES: **(ds)** Nishida 1992:74.

Page 750 ***meritus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:298. **(tx)** Wood, Stevens, & Lezama 1991b:298.

Page 750 *minimus* Schedl. Move to ***perforans*** (Wollaston) as a synonym. Holotype examined (DEB). **NEW SYNONYMY.**

Page 751 ***molokaiensis*** Perkins. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Lanai, Maui, Molokai, Oahu).
REFERENCES: **(ds)** Nishida 1992:74.

Page 751 ***monographus*** (Fabricius). Add:
FIGURES: Lombardero 1994:360, Plate 8 (adult features, gallery); Pfeffer 1994c:289 (habitus).
DISTRIBUTION: EUROPE: Portugal.
HOSTS: *Betula verrucosa, Carpinus betulus, Castanea sativa, Fagus sylvatica, Fraxinus excelsior, Juglans regia, Oidium* sp., *Prunus avium, Quercus canariensis, Q. castaneifolia incana, Q. cerris, Q. coccifera, Q. ilex, Q. lusitanica, Q. pedunculata, Q. petraea, Q. pubescens, Q. pyrenaica, Q. robur, Q. rubra, Q. sessiliflora, Q. suber, Ulmus effusa, U. laevis.*
REFERENCES: **(cn)** Baciu et al. 1981. **(ds)** Adam 1992:217; Burakowski et al. 1992:102; Fernandez Fernandez 1992:525; József 1992; Lombardero 1994:355; Pfeffer 1994c:204; Schott 1986:58; Titovsek 1983:415. **(hb)** Koch 1992:169. **(tx)** Burakowski et al. 1992:102; Lombardero 1994:355; Pfeffer 1994a:177, 1994c:204,205.

Page 753 ***morulus*** Blandford. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:299. **(tx)** Wood, Stevens, & Lezama 1991b:299.

Page 753 ***muasi*** Browne. Move to **Coptodryas**.

Page 753 ***multipunctatus*** Browne. Move to **Cyclorhipidion**.

Page 754 ***murudensis*** Browne. Move to **Euwallacea**.

Page 754 ***myllus*** Browne. Move to **Coptodryas**.

Page 754 ***nakazawai*** Browne. Move to **Amasa**.

Page 755 ***neivai*** Eggers. Add:
REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Page 755 ***nitellus*** Browne. Move to **Coptodryas**.

Page 755 ***nubilus*** Samuelson. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii).
REFERENCES: **(ds)** Nishida 1992:74.

Page 756 ***oahuensis*** Perkins. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Oahu).
REFERENCES: **(ds)** Nishida 1992:74.

Page 756 ***obesus*** LeConte. Add:
DISTRIBUTION: NORTH AMERICA: United States (Maine).
HOSTS: *Quercus rubra*.
REFERENCES: **(ds)** Dearborn & Donahue 1993:81; Laplante et al. 1991:116; Larochelle 1979:51.

Page 756 ***obliquus*** Sharp. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii, Oahu).
REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Page 756 *tantalus* Schedl (synonym of ***obliquus*** Sharp). Add:
REFERENCES: **(ds)** Nishida 1992:75.

Page 758 ***parallelocollis*** Eggers. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:297. **(tx)** Wood, Stevens, & Lezama 1991b:297.

Page 758 ***parallelus*** Eggers. Add:
REFERENCES: **(hb)** Beaver & Löyttyniemi 1991.

Page 758 ***partitus*** Browne. Add:
HOSTS: *Agathis* sp.

Page 758 ***pele*** Samuelson. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii).
REFERENCES: **(ds)** Nishida 1992:74.

Page 759 ***perforans*** (Wollaston). Add *apertus* Schedl, *cylindrus* Schedl, and *minimus* Schedl as synonyms. Add:
FIGURES: Zimmerman 1992:635 (adult).
DISTRIBUTION: EUROPE: Poland. "See CIE map 320". OCEANIA: Hawaiian Islands (Hawaii, Kauai, Maui, Niihau, Oahu); Tonga ('Eua, Niuafoou, Niuatoputapu, Tongatapu).
HOSTS: *Gonystylus bancanus*, *Hevea brasiliensis*, *Macadamia integrifolia*.
REFERENCES: **(cn)** Chang 1993; Di et al. 1991. **(ds)** Bain 1977b:17; Beaver 1987b:65; Booth, Cox, & Madge 1990:198; Burakowski et al. 1992:103; Nishida 1992:74; Ohno 1990c:91; Sukartana 1989b:83. **(ec)** Di et al. 1991. **(hb)** Booth, Cox, & Madge 1990:198. **(tx)** Booth, Cox, & Madge 1990:198; Burakowski et al. 1992:103; Naumann 1993:161.

Page 761 *hirsutus* Lea (synonym of ***perforans*** (Wollaston)). Add:
FIGURES: Zimmerman 1992:635 (adult).

Page 762 ***pfeili*** (Ratzeburg). Add:
FIGURES: Pfeffer 1994c:276 (habitus), 288 (elytral declivity), 289 (habitus).
DISTRIBUTION: EUROPE: Croatia, Slovenia, S. Russia (Caucasus), Ukraine.
HOSTS: *Alnus glutinosa*, *Populus balsamifera*.
REFERENCES: **(ds)** Burakowski et al. 1992:103; Pfeffer 1994c:204; Titovsek 1983:415. **(hb)** Koch 1992:169. **(tx)** Burakowski et al. 1992:103; Pfeffer 1994a:177, 1994c:204,206.

Page 764 ***pinicola*** Eggers. Add:
DISTRIBUTION: ASIA: Thailand.

HOSTS: *Pinus khasya*.
REFERENCES: **(ds)** Hutacharern et al. 1988:30.

Page 764 ***pleiades*** Samuelson. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Maui).
REFERENCES: **(ds)** Nishida 1992:74.

Page 764 ***politus*** Hagedorn. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:297. **(tx)** Wood, Stevens, & Lezama 1991b:297.

Page 764 ***posticus*** Eichhoff. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Hidalgo).
HOSTS: *Cecropia obtusifolia, Cupressus lindleyi, Cyrilla racemiflora, Erythrina americana, Ficus elastica, Heliocarpus appendiculatus, Leucaenia pulverulenta*.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:464; Wood, Stevens, & Lezama 1991b:297. **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994; Torres 1994b:138. **(tx)** Wood, Stevens, & Lezama 1991b:297.

Page 764 *novateutonicus* Schedl (synonym of ***posticus*** Eichhoff). Add:
REFERENCES: **(tx)** Marinoni et al. 1992:126.

Page 765 ***praestans*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:297. **(tx)** Wood, Stevens, & Lezama 1991b:297.

Page 765 ***praevius*** Blandford. Add:
REFERENCES: **(ds)** Yin & Huang 1993. **(tx)** Yin & Huang 1993.

Page 765 ***princeps*** Blandford. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:296. **(tx)** Wood, Stevens, & Lezama 1991b:296.

Page 765 ***productus*** Hagedorn. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:299. **(tx)** Wood, Stevens, & Lezama 1991b:299.

Page 765 ***prolatus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:299. **(tx)** Wood, Stevens, & Lezama 1991b:299.

Page 766 ***pruinosulus*** Browne. Move to **Cyclorhipidion**.

Page 766 ***pseudocylindricus*** Eggers. Add:
HOSTS: *Dryobalanops* sp.
REFERENCES: **(ds)** Ohno 1990c:91.

Page 766 ***pseudopilifer*** Schedl. Add:
HOSTS: *Anisoptera* sp., *Canarium* sp., Myristicaceae sp., *Pometia* sp., Sapotaceae sp., *Scaphium* sp., *Terminalia* sp., *Vatica* sp.
REFERENCES: **(ds)** Ohno 1990c:91.

Page 766 ***pubescens*** Zimmermann. Add:
DISTRIBUTION: NORTH AMERICA: Cuba, El Salvador.
REFERENCES (as ***pini***, nomen nudum): **(bv)** Dixon & Payne 1979b. **(cn)** Maes 1992:13. **(ds)** Atkinson & Peck 1994:323; Baker

1972:271; Bright 1968b:1317; Frost 1975:37; Kirk 1969, 1970; Ostmark 1968; Schedl 1977d:281, 1977e:43; Weber & McPherson, 1991. **(ec)** Dixon & Payne 1979b. **(hb)** Atkinson & Peck 1994:323; Carrano-Moreira, Berisford, & Dalusky 1993; Ostmark 1968; Weber & McPherson 1991. **(tx)** Bright 1968b:1317.

Page 767 ***pumilus*** Eggers. Add:
HOSTS: *Canarium* sp., Sapotaceae sp.
REFERENCES: **(ds)** Ohno 1990c:91.

Page 767 ***quadratus*** Blandford. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:297. **(tx)** Wood, Stevens, & Lezama 1991b:297.

Page 768 ***quasimodo*** Browne. Move to **Cyclorhipidion**.

Page 768 ***repositus*** Schedl. Change holotype depository to NHMW.

Page 768 ***ruandae*** Schedl. Add:
REFERENCES: **(ds)** Hutacharern et al. 1988:48.

Page 769 ***rugatus*** Blackburn. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Kauai, Oahu).
REFERENCES: **(ds)** Nishida 1992:74.

Page 769 ***sayi*** (Hopkins). Add:
REFERENCES: **(ds)** Laplante et al. 1991:116; Larochelle 1979:51. **(hb)** Weber & McPherson 1991.

Page 770 *obesus minor* Swaine (synonym of ***sayi*** (Hopkins)). Add:
REFERENCES: **(ds)** Dearborn & Donahue 1993:81.

Page 770 ***scaber*** Schedl. Add:
REFERENCES: **(tx)** Marinoni et al. 1992:126.

Page 770 ***scabratus*** Schedl. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Oahu).
REFERENCES: **(ds)** Nishida 1992:74.

Page 770 ***schildi*** Schedl. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:297. **(tx)** Wood, Stevens, & Lezama 1991b:297.

Page 771 ***semipunctatus*** Eggers. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:298. **(tx)** Wood, Stevens, & Lezama 1991b:298.

Page 771 ***separandus*** Schedl. Change holotype depository to NHMW.

Page 771 ***seriatus*** Blandford. Add:
REFERENCES: **(ec)** Nakasima et al. 1992:240.

Page 772 ***shoreae*** (Stebbing). Add:
REFERENCES: **(ds)** Ohno 1990c:92.

Page 772 ***siclus*** Schedl. Add:
HOSTS: *Anisoptera* sp., *Kayea* sp., *Kokoona* sp., *Sindora* sp.
REFERENCES: **(ds)** Ohno 1990c:92.

Page 772 ***similis*** Ferrari. Add:
FIGURES: Zimmerman 1992:637 (adult).
DISTRIBUTION: ASIA: Indonesia (**Bali**).
HOSTS: Many listed in Ohno 1990c:92. Also: *Pinus caribaea, P. merkusii.*
REFERENCES: (**cn**) Das & Gope 1985. (**ds**) Booth, Cox, & Madge 1990:198; Hutacharern et al. 1988:46; Ohno 1990c:92; Sukartana 1989b:38. (**hb**) Booth, Cox, & Madge 1990:198. (**tx**) Booth, Cox, & Madge 1990:198.

Page 773 *parvulus* Eichhoff (synonym of ***similis*** Ferrari). Add:
REFERENCES: (**ds**) Sukartana 1989b:38.

Page 774 ***simillimus*** Perkins. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii).
REFERENCES: (**ds**) Nishida 1992:74.

Page 774 ***solutus*** Schedl. Add:
REFERENCES: (**ds**) Bain 1977b:17.

Page 774 ***sparsipilosus*** Eggers. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:299. (**tx**) Wood, Stevens, & Lezama 1991b:299.

Page 774 ***spathipennis*** Eichhoff. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:296. (**tx**) Wood, Stevens, & Lezama 1991b:296.

Page 775 *spicatulus* Browne. Move to ***Coptodryas dentipennis*** (Browne) as a synonym. Holotypes examined (DEB). **NEW SYNONYMY**. Add:
REFERENCES: (**ds**) Ohno 1990c:92.

Page 775 ***spicatus*** Browne. Add:
REFERENCES: (**ds**) Ohno et al. 1987:88.

Page 775 ***spinatus*** Eggers. Add:
HOSTS: *Octomeles sumatrana.*
REFERENCES: (**ds**) Ohno 1990c:92.

Page 775 ***spinulosus*** Blandford. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Oaxaca). OCEANIA: Hawaiian Islands (Oahu).
REFERENCES: (**bv**) Maia 1988. (**cn**) Maia 1988. (**ds**) Equihua-Martinez 1992:60; Nishida 1992:75; Wood, Stevens, & Lezama 1991b:294. (**ec**) Carrano-Moreira & Pedrosa-Macedo 1994. (**hb**) Maia 1988. (**tx**) Wood, Stevens, & Lezama 1991b:294.

Page 775 ***squamulatus*** Eichhoff. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Veracruz**).
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:464; Wood, Stevens, & Lezama 1991b:294. (**ec**) Carrano-Moreira & Pedrosa-Macedo 1994. (**hb**) Noguera-Martinez & Atkinson 1990:464. (**tx**) Wood, Stevens, & Lezama 1991b:294.

Page 776 ***subcostatus*** Eichhoff. Add:
HOSTS: Many listed in Ohno 1990c:92.
REFERENCES: (**ds**) Ohno 1990c:92.

Page 776 ***subdentatus*** Browne. Add *katoi* Browne as a synonym. Add:
DISTRIBUTION: ASIA: Indonesia (Sumatra), Malaysia (Sabah).
HOSTS: *Shorea* sp.
REFERENCES: **(tx)** Beaver 1995:199.

Page 777 ***subdolosus*** Schedl. Add:
HOSTS: *Anisoptera* sp., *Dipterocarpus* sp., *Dryobalanops* sp., *Hopea* sp., *Shorea* sp., *Vatica* sp.
REFERENCES: **(ds)** Ohno 1990c:93.

Page 777 ***subpruinosus*** Browne. Move to **Cyclorhipidion**.

Page 777 ***subtuberculatus*** Eggers. Add:
REFERENCES: **(hb)** Beaver & Löyttyniemi 1991.

Page 779 ***tribulatus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:298. **(tx)** Wood, Stevens, & Lezama 1991b:298.

Page 779 *tuberculosus* Browne. Move to ***Coptodryas recidens*** (Sampson) as a synonym. Add:
SYNONYMY: Beaver 1995:198.
REFERENCES: **(ds)** Ohno 1990c:93.

Page 779 ***tumucensis*** Hagedorn. Add:
HOSTS: *Bursera simaruba*.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:298. **(tx)** Wood, Stevens, & Lezama 1991b:298.

Page 780 ***tunggali*** Schedl. Add:
HOSTS: *Dipterocarpus* sp.
REFERENCES: **(ds)** Ohno 1990c:93.

Page 780 ***viruensis*** Browne. Move to **Euwallacea**.

Page 780 ***vismiae*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:298. **(tx)** Wood, Stevens, & Lezama 1991b:298.

Page 780 ***volvulus*** (Fabricius). Add:
FIGURES: Zimmerman 1992:637 (adult).
DISTRIBUTION: SOUTH AMERICA: Equador (Santa Cruz in Galapagos Islands), Tobago.
HOSTS: Many listed in Ohno 1990c:93. Also: *Acacia pennatula, Aldina heterophylla, Andira inermis, Cajanus cajan, Cedrela odorata, Dialium guianense, Eugenia jambos, Hymenolobium excelsum, Inga* sp., *Leucaenia pulverulenta, Licaria canela, Mangifera indica, Mezilaurus itauba, Ormosia* sp., *Pinus merkusii, Schizolobium parahybum, Sloanea berteriana, Swietenia macrophylla, Tapirira* sp., *Terminalia amazonica.*
REFERENCES: **(cn)** Maes 1992:13; Muniappan 1993. **(ds)** Abreu 1992; Atkinson & Peck 1994:323; Nishida 1992:75; Noguera-Martinez & Atkinson 1990:464; Ohno 1990c:93; Peck & Kukulová-Peck 1990:1638; Torres 1994a:25; Wood, Stevens, & Lezama 1991b:299. **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994. **(hb)** Abreu 1992; Atkinson & Peck 1994:323. **(tx)** Wood, Stevens, & Lezama 1991b:299.

Page 781 *silvestris* Beeson (synonym of ***volvulus*** (Fabricius)). Add:
REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Page 781 *torquatus* Eichhoff (synonym of ***volvulus*** (Fabricius)). Add:
REFERENCES: **(ds)** Hutacharern et al. 1988:48. **(tx)** Wood, Stevens, & Lezama 1991b:299.

Page 783 ***vulcanus*** Perkins. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii, Kauai, Lanai, Maui, Oahu).
REFERENCES: **(ds)** Nishida 1992:75.

Page 783 ***xylographus*** (Say). Add:
FIGURES: Zimmerman 1992:639 (erroneously cites this name in figure caption. Correct name cannot be determined from figure).
DISTRIBUTION: NORTH AMERICA: United States (California).
REFERENCES: **(ds)** Atkinson & Peck 1994:323; Furniss et al. 1992:374; Hobson & Bright 1994:267; Laplante et al. 1991:116; Larochelle 1979:51; Torres 1994a:25. **(hb)** Atkinson & Peck 1994:323; Furniss et al. 1992:374; Weber & McPherson 1991.

Add species: ***cylindricus*** Eggers. Move from **Coptodryas**. Add *kelantanensis* Browne (**Ips**) as a synonym. Add:
REFERENCES: **(tx)** Beaver 1995:199.

Genus **Taurodemus** Wood

Page 785 ***ebenus*** (Wood). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:293. **(tx)** Wood, Stevens, & Lezama 1991b:293.

Page 785 ***godmani*** (Blandford). Add:
REFERENCES: **(ds)** Wood 1982b:791; Wood, Stevens, & Lezama 1991b:293. **(tx)** Wood 1982b:791; Wood, Stevens, & Lezama 1991b:293.

Page 785 ***pandulus*** (Wood). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:293. **(tx)** Wood, Stevens, & Lezama 1991b:293.

Page 785 ***perebeae*** (Ferrari). Add:
DISTRIBUTION: NORTH AMERICA: **Mexico** (Oaxaca).
HOSTS: *Combretum* sp., *Pouteria* sp., *Quararibea* sp., *Robinsonella mirandae*.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:293. **(tx)** Wood, Stevens, & Lezama 1991b:293.

Page 785 ***salvini*** (Blandford). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:293. **(tx)** Wood, Stevens, & Lezama 1991b:293.

Page 786 ***sanguinicollis*** (Blandford). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:293. **(tx)** Wood, Stevens, & Lezama 1991b:293.

Page 786 ***sharpi*** (Blandford). Add:
HOSTS: *Terminalia* sp., *Trema micrantha*.

REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:293. (**tx**) Wood, Stevens, & Lezama 1991b:293.

Genus **Xylosandrus** Reitter

Page 787 **Xylosandrus** Reitter. Add:

KEYS: Ohno 1990a:25 (to intercepted species in Japan); Wood, Stevens, & Lezama 1991b:293 (to Costa Rican species).
REFERENCES: (**ds**) Basset 1991.

Page 787 ***abruptoides*** (Schedl). Add:

REFERENCES: (**cn**) Browne 1968:719. (**ds**) Browne 1968:719, 1974a:65. (**hb**) Browne 1968:719. (**tx**) Schedl 1979c:8.

Page 787 ***abruptulus*** (Schedl). Add:

FIGURES: Zimmerman 1992:641 (adult).

Page 787 ***brevis*** (Eichhoff). Add:

REFERENCES: (**ec**) Kajimura & Hijii 1994a; Kinuura, Hijii, & Kanamitsu 1990.

Page 788 ***compactus*** (Eichhoff). Add:

FIGURES: Booth, Cox, & Madge 1990:199 (adult).
DISTRIBUTION: ASIA: Thailand. OCEANIA: Hawaiian Islands (Hawaii, Kauai, Lanai, Maui, Molokai, Oahu).
HOSTS: *Artocarpus fraxinifolius, Cattleya* sp., *Khaya grandifoliola, K. senegalensis, Swietenia macrophylla, Toonia sureni.*
REFERENCES: (**cn**) Franqui, Medina-Guad, & Gallardo-Covas 1991. (**ds**) Atkinson & Peck 1994:323; Booth, Cox, & Madge 1990: 199; Franqui, Medina-Guad, & Gallardo-Covas 1991; Hutacharern et al. 1988:12; Meshram, Husen, & Joshi 1993; Nishida 1992:75; Torres 1994a:25; Yin & Huang 1993. (**ec**) Balakrishnan, Sreedharan, & Bhat 1994; Booth, Cox, & Madge 1990:199; Dhanam, Raju, & Bhat 1992; Sreedharan, Balakrishnan, & Bhat 1992. (**hb**) Atkinson & Peck 1994:323; Booth, Cox, & Madge 1990:199. (**tx**) Booth, Cox, & Madge 1990:199; Yin & Huang 1993.

Page 790 ***crassiusculus*** (Motschulsky). Add:

DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii, Kauai, Maui, Oahu).
HOSTS: Many listed in Ohno 1990c:86. Also: *Carya illinoinensis, Vitis* sp.
REFERENCES: (**bv**) Ree 1994. (**cn**) Pfeiffer et al. 1990; Sreedharan et al. 1991. (**ds**) Atkinson & Peck 1994:323; Frank & McCoy 1992: 6; Nishida 1992:75; Ohno 1990c:86; Ree 1994. (**ec**) Kajimura & Hijii 1994a; Kinuura, Hijii, & Kanamitsu 1990; Sreedharan et al. 1991; Yoshikawa & Kasahara 1991. (**hb**) Atkinson & Peck 1994: 323. (**tx**) Ohno 1990a:26.

Page 792 *semigranosus* Blandford (synonym of ***crassiusculus*** (Motschulsky)). Add:

REFERENCES: (**ds**) Sukartana 1989b:38.

Page 793 ***curtulus*** (Eichhoff). Add:

REFERENCES: (**ec**) Carrano-Moreira & Pedrosa-Macedo 1994. (**ds**) Wood, Stevens, & Lezama 1991b:293. (**tx**) Wood, Stevens, & Lezama 1991b:293.

Page 793 ***derupteterminatus*** (Schedl). Add:
DISTRIBUTION: ASIA: Moluccas, **Sulawesi.**
REFERENCES: **(tx)** Ohno 1990a:26.

Page 794 *difficilis* (Eggers). Move to ***morigerus*** (Blandford) as a synonym. Types compared (DEB). **NEW SYNONYMY.** Add:
FIGURES: Zimmerman 1992:641 (adult).
DISTRIBUTION: OCEANIA: Solomon Islands.
REFERENCES: **(tx)** Ohno 1990a:26.

Page 795 ***germanus*** (Blandford). Add:
FIGURES: Bruge 1995:251 (habitus).
DISTRIBUTION: EUROPE: Belgium, Switzerland. NORTH AMERICA: Canada (**British Columbia**), United States (**Virginia**).
HOSTS: *Abies pectinata, Acer platanoides, A. pseudoplatanus, Alnus glutinosa, Betula verrucosa, Carpinus betulus, Celtis tenuifolia, Fagus sylvatica, Juglans regia, Picea abies, P. excelsa, Pinus densiflora, P. pentaphylla, P. strobus, Prunus avium, P. cerasus, Quercus rubra, Q. sessiliflora, Robinia pseudoacacia, Styrax obassia, Ulmus effusa, Vitis* sp.
REFERENCES: **(bv)** Bruge 1995; Rauhut, Schmidt, & Schmidt 1993. **(cn)** Meyer 1992; Pfeiffer et al. 1990. **(ds)** Bright, Skidmore, & Dunster 1994; Bruge 1995; Gogniat 1991:28; Holzschuh 1993; Pfeffer 1994c:202; Schott 1986:58; Yin & Huang 1993. **(ec)** Bruge 1995; Nakasima et al. 1992:241. **(hb)** Bruge 1995; Osumi & Mizuno 1992; Weber & McPherson 1991. **(tx)** Ohno 1990a:26; Pfeffer 1994a:176, 1994c:202,205; Yin & Huang 1993.

Page 796 ***mancus*** (Blandford). Add:
HOSTS: *Albizzia* sp.
REFERENCES: **(ds)** Ohno 1990c:91.

Page 797 ***morigerus*** (Blandford). Add *difficilis* Eggers as a synonym. Add:
DISTRIBUTION: North America: Mexico (Oaxaca). OCEANIA: Tonga (Vava'u). SOUTH AMERICA: Ecuador (**Santa Cruz** in Galapagos Islands), Tobago.
HOSTS: *Cecropia obtusifolia, Didymopanax* sp., *Esenbeckia pentaphylla, Licania hypoleuca, Machaerium cirrhiferum, Miconia trinerva, Pouteria sapota, Quararibea* sp., *Schizolobium parahybum, Shorea* sp., *Terminalia amazonica.*
REFERENCES: **(ds)** Beaver 1987b:65; Booth, Cox, & Madge 1990: 200; Equihua-Martinez 1992:60; Ohno 1990c:87; Wood, Stevens, & Lezama 1991b:293. **(hb)** Booth, Cox, & Madge 1990:200; Koch 1992:169. **(tx)** Booth, Cox, & Madge 1990:200; Ohno 1990a:26; Wood, Stevens, & Lezama 1991b:293.

Page 799 ***mutilatus*** (Blandford). Add:
REFERENCES: **(an)** Kajimura & Hijii 1992. **(ds)** Yin & Huang 1993. **(ec)** Kajimura & Hijii 1992, 1994a, 1994b. **(hb)** Kajimura & Hijii 1994b. **(tx)** Yin & Huang 1993.

Page 800 ***retusus*** (Eichhoff). Add:
HOSTS: *Eucalyptus* sp.
REFERENCES: **(cn)** Zanuncio et al. 1993. **(ds)** Zanuncio et al. 1993. **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Page 800 ***solidus*** (Eichhoff). Add:
FIGURES: Zimmerman 1992:637 (adult).
REFERENCES: (**tx**) Naumann 1993:161.

Page 801 ***ursulus*** (Eggers). Add:
HOSTS: *Shorea* sp.
REFERENCES: (**ds**) Ohno 1990c:93.

Page 801 ***zimmermanni*** (Hopkins). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Hidalgo).
HOSTS: *Byrsonima cotinifolia*.
REFERENCES: (**ds**) Atkinson & Peck 1994:324; Wood, Stevens, & Lezama 1991b:293. (**hb**) Atkinson & Peck 1994:324; (**tx**) Wood, Stevens, & Lezama 1991b:293.

Genus **Cnestus** Sampson

Page 802 *glaberrimus* Schedl (synonym of ***aterrimus*** (Eggers)). Move to ***Xyleborus insulindicus*** Eggers as a synonym. Add:
NOTES: Browne 1961c:173 (error in synonymy).
REFERENCES: (**tx**) Schedl 1970c:224.

Page 802 ***cruralis*** (Schedl). Move to **Coptodryas**.

Genus **Xyleborinus** Reitter

Page 803 **Xyleborinus** Reitter. Add:
KEYS: Wood, Stevens, & Lezama 1991b:300 (to Costa Rican species).
REFERENCES: (**tx**) Holzschuh 1994; Lombardero 1994:362.

Page 804 ***alni*** (Niisima). Add:
FIGURES: Holzschuh 1994:314 (elytral declivity, pronotum); Pfeffer 1994c:288 (pronotum, elytral declivity).
DISTRIBUTION: EUROPE: Austria, Germany, Poland
HOSTS: *Alnus glutinosa, A. hirsuta, Betula platyphylla japonica, Corylus avellana, Quercus robur, Q. sessiflora, Salix alba.*
REFERENCES: (**ds**) Holzschuh 1994:315; Pfeffer 1994c:202. (**hb**) Koch 1992:168. (**tx**) Holzschuh 1994:315; Pfeffer 1994a:177, 1994c:202,206.

Page 804 ***andrewesi*** (Blandford). Add *Cryptoxyleborus gracilior* Browne as a synonym.

Page 805 ***artestriatus*** (Eichhoff). Add:
FIGURES: Zimmerman 1992:631 (adult).

Page 805 ***attenuatus*** (Blandford). Add:
REFERENCES: (**ec**) Nakasima et al. 1992:241.

Page 806 ***collarti*** (Eggers). Add:
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: (**ds**) Medler 1980:291.

Page 806 ***dirus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:300. (**tx**) Wood, Stevens, & Lezama 1991b:300.

Page 806 ***exiguus*** (Walker). Add:
HOSTS: Many listed in Ohno 1990c:89.
REFERENCES: **(ds)** Ohno 1990c:89.

Page 808 ***gracilis*** (Eichhoff). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Campeche, Oaxaca, Veracruz).
HOSTS: *Miconia pubescens, M. trinerva, Ochroma* sp., *Quercus* sp.
REFERENCES: **(ds)** Atkinson & Peck 1994:322; Wood, Stevens, & Lezama 1991b:300. **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994. **(hb)** Atkinson & Peck 1994:322. **(tx)** Wood, Stevens, & Lezama 1991b:300.

Page 808 *aspericauda* Eggers (synonym of ***gracilis*** (Eichhoff)). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:300. **(tx)** Wood, Stevens, & Lezama 1991b:300.

Page 808 ***intersetosus*** (Blandford). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Oaxaca).
HOSTS: *Dialium guianense, Esenbeckia pentaphylla, Heliocarpus appendiculatus, Machaerium cirrhiferum, Miconia* sp., *Schizolobium parahybum, Spondias radlkoferi.*
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:300. **(tx)** Wood, Stevens, & Lezama 1991b:300.

Page 808 ***linearicollis*** (Schedl). Add:
DISTRIBUTION: SOUTH AMERICA: Argentina.
HOSTS: *Eucalyptus camaldulensis, E. tereticornis, Pinus halepensis.*
REFERENCES: **(ds)** Fiorentino, Iturre, & Darchuk 1988. **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Page 808 ***longulus*** (Schedl). Add:
REFERENCES: **(ds)** Schedl 1966f:78.

Page 809 ***micrographus*** (Schedl). Add:
REFERENCES: **(ds)** Ohno 1990c:91.

Page 809 ***mitosomipennis*** (Schedl). Add:
HOSTS: *Alchornea coriacea, Piptadenia pervillei, Symphonia* sp.

Page 809 ***perexiguus*** (Schedl). Add:
FIGURES: Zimmerman 1992:631 (adult).

Page 810 ***protinus*** (Wood). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:300. **(tx)** Wood, Stevens, & Lezama 1991b:300.

Page 810 ***reconditus*** (Schedl). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:300. **(tx)** Wood, Stevens, & Lezama 1991b:300.

Page 810 ***saxesenii*** (Ratzeburg). Add:
FIGURES: Holzschuh 1994:314 (adult features); Lekander 1968:170 (larval characters); Lombardero 1994:366, Plate 8 (adult features, aedeagus, gallery); Pfeffer 1994c:288 (pronotum, elytral declivity); Yin, Huang, & Li 1984:159.

DISTRIBUTION: AFRICA: Nigeria. ATLANTIC ISLANDS: Azores. EUROPE: Hungary, Poland. OCEANIA: Hawaiian Islands (Hawaii, Kauai, Maui, Oahu).

HOSTS: *Abies pectinata, Actinidia deliciosa, Aesculus hippocastanum, Alnus glutinosa, Betula pubescens, B. verrucosa, Castanea sativa, C. vesca, Celtis tenuifolia, Fagus sylvatica, Fraxinus excelsior, F. ornus, Juglans regia, Koelreuteria paniculata, Larix decidua, Malus communis, M. domestica, Picea excelsa, Pinus nigra, P. radiata, P. sylvestris, Populus nigra, P. pyramidalis, Prunus avium, P. cerasus, P. domestica, P. insititia, P. insititia syriaca, P. padus, P. persica, P. serrulata, P. spinosa, Pyrus communis, P. malus, Quercus pedunculata, Q. pyrenaica, Q. robur, Q. rubra, Q. sessiliflora, Salix cinerea, Sambucus nigra, Sorbus torminalis, Tsuga canadensis, Ulmus glabra, U.* sp., *Vitis* sp.

REFERENCES: **(an)** Lekander 1968:70. **(bv)** Dominik 1986; Otte 1989:239; Rauhut, Schmidt, & Schmidt 1993. **(cn)** Anonymous 1992c; Campbell, Sarazin, & Lyons 1989:375; Kadyrov 1990; Pfeiffer et al. 1990. **(ds)** Adam 1992:217; Alexander 1994; Atkinson & Peck 1994:322; Balazuc 1984:317; Balazy & Michalski 1962a:202; Barriga et al. 1993:73,85; Borges 1990:116; Bright, Skidmore, & Dunster 1994; Burakowski et al. 1992:104; Campbell, Sarazin, & Lyons 1989:375; Dearborn & Donahue 1993:81; Fernandez Fernandez 1992:525; Gogniat 1991:27; Hansen et al. 1993:111; Harris & Minko 1980; Kuschel 1990:76; Laplante et al. 991:116; Lee et al. 1990:17, Lombardero 1994:362; Medler 1980:291; Michalski & Ratajczak 1994; Nishida 1992:74; Owen 1993:160; Parsons et al. 1991:59; Pfeffer 1994c:203; Schott 1986:58. **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994; Michalski & Ratajczak 1994; Nakasima et al. 1992:242; Otte 1989:239. **(hb)** Atkinson & Peck 1994:322; Balazy & Michalski 1962a:202; Campbell, Sarazin, & Lyons 1989: 375; Carrano-Moreira, Berisford, & Dalusky 1993; Koch 1992:168; Lombardero 1994:362; Osumi & Mizuno 1992; Owen 1993; Weber & McPherson 1991. **(ms)** Hansen et al. 1993:111. **(tx)** Burakowski et al. 1992:104; Holzschuh 1994; Lekander 1968; Lombardero 1994: 362; Naumann 1993:161; Pfeffer 1994a:177, 1994c:203,206.

Page 814 *angustatus* Eichhoff (synonym of ***saxesenii*** (Ratzeburg)). Add:

REFERENCES: **(ds)** Burakowski et al. 1992:104; Pfeffer 1994c:206. **(tx)** Burakowski et al. 1992:104; Pfeffer 1994c:206.

Page 815 *pecanus* Hopkins (synonym of ***saxesenii*** (Ratzeburg)). Add:

REFERENCES: **(ds)** Baker 1972:271; Kirk 1969. **(ec)** Norris 1979.

Page 815 *peregrinus* Eggers (synonym of ***saxesenii*** (Ratzeburg)). Add:

REFERENCES: **(ds)** Köhler 1992:128; Pfeffer 1994c:205; Schott & Callot 1994:67. **(tx)** Pfeffer 1994a:179, 1994c:205.

Page 816 ***sentosus*** (Eichhoff). Add:

REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Page 816 ***sharpae*** (Hopkins). Add:

DISTRIBUTION: AFRICA: Nigeria.

REFERENCES: **(ds)** Medler 1980:291.

Page 818 ***tribulosus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:300. **(tx)** Wood, Stevens, & Lezama 1991b:300.

Page 818 ***undatus*** (Schedl). Add:
REFERENCES: **(tx)** Serafim 1992:195.

Add species: ***horridulus*** (Browne). From **Xyleborus**. Add:
REFERENCES: **(tx)** Beaver 1995:203.

Genus **Hadrodemius** Wood

Page 818 ***amorphus*** (Eggers). Add:
REFERENCES: **(ds)** Yin & Huang 1993. **(tx)** Yin & Huang 1993.

Genus **Eccoptopterus** Motschulsky

Page 819 **Eccoptopterus** Motschulsky. Add:
KEYS: Ohno 1990a:26 (to intercepted species in Japan).

Page 820 *eccoptopterus* (Schedl). Move to ***spinosus*** (Olivier) as a synonym. Add:
SYNONYMY: Beaver 1987b:67.

Page 820 ***gracilipes*** (Eichhoff). Add:
HOSTS: *Agathis* sp., *Anisoptera* sp., *Dipterocarpus* sp., *Gmelina arborea*, Lauraceae sp.
REFERENCES: **(ds)** Ohno 1990c:94. **(tx)** Ohno 1990a:26.

Page 820 ***limbus*** Sampson. Add:
REFERENCES: **(ds)** Ohno 1990c:94. **(tx)** Ohno 1990a:26.

Page 820 ***spinosus*** (Olivier). Add *eccoptopterus* Schedl as a synonym. Add:
FIGURES: Zimmerman 1992:621 (adult).
HOSTS: *Hevea brasiliensis*, Lauraceae sp., *Octomeles sumatrana*, *Vatica* sp.
REFERENCES: **(ds)** Beaver 1987b:67; Ohno 1990c:94. **(tx)** Beaver 1987b:67; Ohno 1990a:26.

Page 821 *sexspinosus* Motschulsky (synonym of ***spinosus*** (Olivier)). Add:
REFERENCES: **(cn)** Hong et al. 1982. **(ds)** Sukartana 1989b:38.

Genus **Schedlia** Browne

Page 822 **Schedlia** Browne. Add:
KEYS: Ohno 1990a:26 (to intercepted species in Japan).

Page 822 ***paraconvexa*** Bright. Add:
DISTRIBUTION: ASIA: Philippine Islands.
REFERENCES: **(tx)** Ohno 1990a:26.

Page 822 ***sumatrana*** (Hagedorn). Add:
REFERENCES: **(ds)** Ohno 1990c:93. **(tx)** Ohno 1990a:26.

Genus **Coptodryas** Hopkins

Page 823 ***confusa*** Hopkins. Add:
HOSTS: *Dryobalanops* sp., *Dyera* sp.

Page 823 *cryphaloides* Schedl (synonym of ***confusa*** Hopkins). Add:
REFERENCES: **(ds)** Ohno 1990c:88.

Page 824 ***cylindrica*** (Eggers). Move to **Xyleborus**.

Page 824 ***elegans*** (Sampson). Add:
REFERENCES: **(cn)** Das & Gope 1985.

Page 824 ***eucalyptica*** (Schedl). Add:
FIGURES: Kuschel 1990:100 (adult); Zimmerman 1992:619 (adult).
DISTRIBUTION: OCEANIA: New Zealand.
HOSTS: *Acacia decurrens, Corynocarpus laevigatus, Melicytus ramiflorus.*
REFERENCES: **(ds)** Kuschel 1990:76.

Page 825 ***nudibrevis*** (Schedl). Add:
HOSTS: *Gonystylus* sp.
REFERENCES: **(ds)** Ohno 1990c:91.

Page 826 ***nugax*** (Schedl). Add:
REFERENCES: **(ds)** Ohno 1990c:91.

Page 826 ***obtusicollis*** (Schedl). Add:
DISTRIBUTION: ASIA: Malaysia (Sabah).

Page 826 ***perparva*** (Sampson). Add:
REFERENCES: **(ds)** Yin & Huang 1993. **(tx)** Yin & Huang 1993.

Page 826 ***pubipennis*** (Schedl). Add:
REFERENCES: **(tx)** Serafim 1992:195.

Page 827 ***recidens*** (Sampson). Add *Xyleborus tuberculosus* Brown as a synonym. Add:
HOSTS: *Dipterocarpus* sp., *Dryobalanops* sp.

Add species: ***amphicauda*** (Browne). From **Xyleborus**. Add:
REFERENCES: **(tx)** Beaver 1995:202.

borneensis (Browne). From **Xyleborus**. Add:
REFERENCES: **(ds)** Ohno 1990c:88. **(tx)** Beaver 1995:202.

brunnea (Browne). From **Xyleborus**. Add:
REFERENCES: **(tx)** Beaver 1995:202.

cruralis (Schedl). From **Cnestus**. Add:
NOTES: The locality records of Tibet, Andaman Islands, and Bengal should be questioned. Species only known from holotype from Thailand.
REFERENCES: **(tx)** Beaver 1995:201.

dentipennis (Browne). From **Xyleborus**. Add *spicatulus* Browne as a synonym. Add:
HOSTS: *Dipterocarpus* sp., *Shorea* sp.
REFERENCES: **(tx)** Beaver 1995:202.

muasi (Browne). From **Xyleborus**. Add:
REFERENCES: **(tx)** Beaver 1995:202.

mylla (Browne). From **Xyleborus**. Add:
REFERENCES: **(ds)** Ohno, Yoneyama, & Nakazawa 1982b:8. **(tx)** Beaver 1995:202.

nitella (Browne). From **Xyleborus**. Add:
REFERENCES: **(tx)** Beaver 1995:202.

popondettae (Browne). From **Cyclorhipidion**. Add:
REFERENCES: **(tx)** Beaver 1995:202.

Genus **Taphrodasus** Wood

Page 828 ***divisus*** (Browne). Add:
DISTRIBUTION: ASIA: Borneo.
HOSTS: *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990c:94. **(tx)** Ohno 1990a:27.

Page 828 ***penicillatus*** (Hagedorn).
HOSTS: *Dipterocarpus* sp., *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990c:94. **(tx)** Ohno 1990a:27.

Genus **Cryptoxyleborus** Schedl

Page 828 **Cryptoxyleborus** Schedl. Add:
KEYS: Ohno 1990a:26 (to intercepted species in Japan).

Page 828 *dryobalanopsis* Schedl. Move to ***eggersi*** Schedl as a synonym. Types compared (DEB). **NEW SYNONYMY.** Add:
REFERENCES: **(ds)** Ohno 1990c:93. **(tx)** Ohno 1990a:27.

Page 828 ***eggersi*** Schedl. Add *dryobalanopsis* Schedl as a synonym. Add:
DISTRIBUTION: ASIA: Borneo, Philippine Islands, **Vietnam**.
HOSTS: *Dipterocarpus* sp.

Page 828 *gracilior* Browne. Move to ***Xyleborinus andrewesi*** as a synonym. Add:
SYNONYMY: Beaver 1995:198.

Page 828 ***major*** Browne. Add:
HOSTS: *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990c:93. **(tx)** Ohno 1990a:27.

Page 828 ***naevus*** Schedl. Add:
DISTRIBUTION: ASIA: Philippine Islands (Mindanao).

Page 829 ***shoreae*** Browne. Add:
DISTRIBUTION: ASIA: Borneo.
HOSTS: *Dipterocarpus* sp.
REFERENCES: **(ds)** Ohno 1990c:93. **(tx)** Ohno 1990a:27.

Page 829 ***subnaevus*** Schedl. Add:
HOSTS: *Dipterocarpus* sp., *Dryobalanops* sp.
REFERENCES: **(ds)** Ohno 1990c:93. **(tx)** Ohno 1990a:26.

Add species: ***micrographus*** (Schedl). From **Webbia**. **NEW COMBINATION** (ex Beaver (1995), personal communication).

simplex (Browne). From **Webbia**. **NEW COMBINATION** (ex Beaver (1995), personal communication).

Genus **Webbia** Hopkins

Page 829 **Webbia** Hopkins. Add:
KEYS: Ohno 1990a:27 (to intercepted species in Japan).

Page 830 ***cornutus*** Schedl. Add:
REFERENCES: **(tx)** Ohno 1990a:28.

Page 830 ***dasyurus*** Browne. Add:
DISTRIBUTION: ASIA: Borneo.
HOSTS: *Dipterocarpus* sp., *Dryobalanops* sp.
REFERENCES: **(ds)** Ohno 1990c:93. **(tx)** Ohno 1990a:27.

Page 830 ***dentatus*** Eggers. Add:
REFERENCES: **(tx)** Ohno 1990a:28.

Page 830 ***denticulatus*** Browne. Add:
REFERENCES: **(tx)** Ohno 1990a:27.

Page 830 ***dipterocarpi*** Hopkins. Add:
HOSTS: *Bridelia tomentosa, Dipterocarpus cornutus, D. crinitus, Dryobalanops oblongifolia, Macaranga megalophylla, Shorea gysbertsiana, S. leprosula, S. macroptera, S. ovalis, S. parvifolia, S. sericeiflora.*

Page 830 *octodecimspinatus* Sampson (synonym of ***dipterocarpi*** Hopkins). Add:
REFERENCES: **(cn)** Yunus & Hua 1980:229. **(ds)** Browne 1961a:310, 1961c:186; Schedl 1964c:304; Yunus & Hua 1980:229. **(hb)** Browne 1961c:186.

Page 831 ***duodecimspinatus*** Schedl. Add:
REFERENCES: **(tx)** Ohno 1990a:28.

Page 831 ***hatanakai*** Browne. Add:
REFERENCES: **(tx)** Ohno 1990a:28.

Page 831 ***micrographus*** (Schedl). Move to **Cryptoxyleborus**.

Page 831 ***multidentatus*** Browne. Add:
DISTRIBUTION: ASIA: Borneo.
REFERENCES: **(ds)** Ohno 1990c:94. **(tx)** Ohno 1990a:28.

Page 831 ***obtusipennis*** Schedl. Add:
REFERENCES: **(tx)** Ohno 1990a:28.

Page 831 ***orbicularis*** Schedl. Add:
DISTRIBUTION: ASIA: Philippine Islands.
HOSTS: *Dipterocarpus* sp., *Dryobalanops* sp., *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990c:94. **(tx)** Ohno 1990a:28.

Page 831 ***pabo*** Sampson. Add:
HOSTS: *Dipterocarpus* sp., *Dryobalanops* sp.
REFERENCES: **(ds)** Ohno 1990c:94. **(tx)** Ohno 1990a:28.

Page 832 ***platypoides*** Eggers. Add:
REFERENCES: **(tx)** Ohno 1990a:28.

Page 832 ***quattuordecimspinatus*** Sampson. Add:
REFERENCES: **(ds)** Ohno 1990c:94. **(tx)** Ohno 1990a:28.

Page 832 ***sarawakensis*** Schedl. Add:
REFERENCES: **(ds)** Ohno 1990c:94. **(tx)** Ohno 1990a:29.

Page 832 ***similis*** (Eggers). Add:
DISTRIBUTION: ASIA: Indonesia (**Kalimantan**).

Page 833 ***simplex*** (Browne). Move to **Cryptoxyleborus**. Add:
HOSTS: *Dipterocarpus kunstleri, Hopea ferrea, Shorea gysbertsiana, S. ovata.*
REFERENCES: **(ds)** Beaver & Browne 1978:586; Browne 1962c:202. **(hb)** Beaver & Browne 1978:586. **(tx)** Schedl 1979c:230.

Page 833 ***spinipennis*** Schedl. Add:
HOSTS: *Vatica* sp.
REFERENCES: **(ds)** Ohno 1990c:94. **(tx)** Ohno 1990a:27.

Page 833 ***trigintispinatus*** Sampson. Add:
DISTRIBUTION: ASIA: Andaman Islands, **Cambodia**, Thailand.
REFERENCES: **(cn)** Mathur & Singh 1960b:57. **(ds)** Beaver & Browne 1975:297; Mathur & Singh 1960b:297; Ohno 1990c:94. **(tx)** Ohno 1990a:28.

Page 833 change ***26-spinatus*** Sampson (a synonym of ***trigintispinatus*** Sampson) to ***duodevigintispinatus***. Add:
NOTES: Originally named ***26-spinatus***, a spelling not accepted by the International Code of Zoological Nomenclature.
REFERENCES: **(ds)** Browne 1968a:133.

TRIBE XYLOCTONINI

Genus **Cryphalomimus** Eggers

Page 835 ***ater*** Nunberg. Add:
FIGURES: Nunberg 1965b:pl 7.

Page 835 ***striatus*** Eggers. Add:
FIGURES: Schedl 1961k:442.
DISTRIBUTION: AFRICA: Mozambique, South Africa.
REFERENCES: **(ds)** Schedl 1982:278.

Genus **Glostatus** Schedl

Page 835 ***acaciae*** (Schedl). Add:
FIGURES: Schedl 1961k:643.

Page 835 ***assimilis*** Schedl. Add:
DISTRIBUTION: AFRICA: Malawi.
HOSTS: *Brachystegia* sp.

Page 835 ***declividepressus*** Schedl. Add:
FIGURES: Schedl 1961k:641.

Page 835 ***delicatus*** (Schedl). Add:
HOSTS: *Cassine crocea, Nuxia floribunda.*

Page 836 ***seydeli*** (Nunberg). Add:
FIGURES: Nunberg 1967a:336,337.

Page 836 ***squamosus*** Schedl. Add:
HOSTS: *Fagara capensis.*

Page 836 ***xyloctonus*** (Schedl). Add:
FIGURES: Schedl 1961k:639 (antenna).

Genus **Ctonoxylon** Hagedorn

Page 836 ***acuminatum*** Schedl. Add:
DISTRIBUTION: AFRICA: Nigeria.

Page 837 ***bosqueiae*** Schedl. Add:
DISTRIBUTION: AFRICA: Equatorial Guinea, Nigeria.
REFERENCES: (**ds**) Medler 1980:290.

Page 837 ***crenatum*** Hagedorn. Add:
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: (**ds**) Medler 1980:290.

Page 837 ***flavescens*** Hagedorn. Add:
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: (**ds**) Medler 1980:290.

Page 838 ***hamatum*** Schedl. Add:
FIGURES: Schedl 1961k:436.

Page 838 ***methneri*** Eggers. Add:
HOSTS: *Olea capensis.*
REFERENCES: (**ds**) Anonymous 1970g:13; Schedl 1961k:438, 1962b:58, 1962k:1067, 1965g:19.

Page 838 ***spinifer*** Eggers. Add:
FIGURES: Schedl 1961k:441 (adults).
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: (**ds**) Medler 1980:290.

Page 838 ***uniseriatum*** Schedl. Add:
DISTRIBUTION: AFRICA: Namibia.

Genus **Scolytomimus** Blandford

Page 839 ***bicolor*** Wood. Add:
FIGURES: Wood 1960a:17.

Page 839 ***dilutus*** Blandford. Add:
DISTRIBUTION: ASIA: India.

Page 839 ***maculatus*** Beeson. Add:
DISTRIBUTION: OCEANIA: Fiji.

Page 839 ***philippinensis*** (Eggers). Add:
FIGURES: Zimmerman 1992:629 (adult).

Genus **Xyloctonus** Eichhoff

Page 840 ***bimarginatus*** Eggers. Add:
FIGURES: Menier 1974:656 (elytral apex).

Page 840 ***biseriatus*** Schedl. Add:
FIGURES: Menier 1974:656 (elytral apex).

Page 840 ***mauritianus*** Menier. Add:
FIGURES: Menier 1974:663 (habitat, adult).

Page 840 ***niger*** Schedl. Add:
REFERENCES: (**ds**) Schedl 1961k:420. (**tx**) Schedl 1961k:420.

Page 841 ***quadricinctus*** Schedl. Add:
FIGURES: Menier 1974:656 (elytral apex); Schedl 1961k:422.
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: (**ds**) Medler 1980:292.

Page 841 ***scolytoides*** Eichhoff. Add:
FIGURES: Schedl 1961k:423.
HOSTS: *Olea capensis*.

TRIBE CRYPHALINI

Page 842 **Cryphalini.** Add:
KEYS: Lombardero 1994:369 (to genera in northwest Spain); Pfeffer 1994c:182 (to Palearctic genera).
REFERENCES: (**tx**) Lombardero 1994:369; Pfeffer 1994c:182.

Genus **Trypophloeus** Fairmaire

Page 842 **Trypophloeus** Fairmaire. Add:
KEYS: Pfeffer 1994a:166 (to Central European species), 1994c:188 (to Palearctic species).
REFERENCES: (**tx**) Lombardero 1994:371; Pfeffer 1994a:166, 1994c:188.

Page 842 ***alni*** (Lindemann). Add:
DISTRIBUTION: ASIA: Russia (Siberia).
REFERENCES: (**ds**) Burakowski et al. 1992:106; Michalski & Ratajczak 1994; Pfeffer 1994c:189. (**ec**) Michalski & Ratajczak 1994. (**hb**) Koch 1992:160. (**tx**) Burakowski et al. 1992:106; Pfeffer 1994a:166, 1994c:189.

Page 843 ***binodulus*** (Ratzeburg). Add:
FIGURES: Lombardero 1994:374, Plate 9 (adult features, aedeagus [as *spiculatus*]); Pfeffer 1994c:286 (elytral declivity), 287 (pronotum).
DISTRIBUTION: EUROPE: Ukraine.
HOSTS: *Alnus glutinosa, Populus alba, P. canadensis, P. nigra, P. tremula*.
NOTES: Pfeffer 1994a:167, 1994c:190 (treats this species under the name ***asperatus***, see note in 1992 catalog). Pfeffer 1994c:190 (recognizes three subspecies, *asperatus*, *spiculatus*, and *grothi*).

REFERENCES: (**cn**) Hyman 1992:404. (**ds**) Burakowski et al. 1992: 106; Hansen et al. 1993:111; Hyman 1992:404; Pfeffer 1994c:190. (**ec**) Hyman 1992:404. (**ms**) Hansen et al. 1993:111. (**tx**) Burakowski et al. 1992:106; Pfeffer 1994a:167, 1994c:190.

Page 844 *grothi* (Hagedorn) (synonym of ***binodulus*** (Ratzeburg)). Add:
REFERENCES: (**ds**) Hansen et al. 1994:88; Pfeffer 1994c:191. (**hb**) Koch 1992:160. (**tx**) Pfeffer 1994c:191.

Page 844 *spiculatus* Eggers (synonym of ***binodulus*** Ratzeburg)). Add:
REFERENCES: (**ds**) Lombardero 1994:371; Lombardero & Novoa 1994; Pfeffer 1994c:191. (**hb**) Koch 1992:161. (**tx**) Lombardero 1994:371; Pfeffer 1994c:191.

Page 844 ***dejevi*** Stark. Add:
REFERENCES: (**ds**) Pfeffer 1994c:189. (**tx**) Michalski 1969a:892; Pfeffer 1994c:189.

Page 844 ***grandis*** Schedl. Add:
HOSTS: *Populus* sp.
REFERENCES: (**ds**) Pfeffer 1994c:190. (**tx**) Pfeffer 1994c:190.

Page 844 ***granulatus*** (Ratzeburg). Add:
FIGURES: Lekander 1968:169 (larval characters); Pfeffer 1994c: 275 (antenna), 286 (elytral declivity, vestiture), 287 (pronotum).
DISTRIBUTION: EUROPE: United Kingdom (known in U.K. from a single specimen "extinct").
HOSTS: *Populus nigra, Salix* sp.
REFERENCES: (**ds**) Balazy & Michalski 1962a:202; Burakowski et al. 1992:107; Hyman 1992:404; Pfeffer 1994c:192. (**hb**) Balazy & Michalski 1962a:202; Koch 1992:160. (**tx**) Burakowski et al. 1992: 107; Pfeffer 1994a:167, 1994c:192.

Page 845 *bispinulus* Eggers (synonym of ***granulatus*** (Ratzeburg)). Add:
REFERENCES: (**an**) Lekander 1968:67. (**ds**) Pfeffer 1994c:192. (**tx**) Lekander 1968:67; Pfeffer 1994a:167, 1994c:192.

Page 845 ***klimeschi*** Eggers. Add:
DISTRIBUTION: ASIA: Kyrgyzstan, Turkmenistan, Uzbekistan.
REFERENCES: (**ds**) Pfeffer 1994c:191. (**tx**) Pfeffer 1994c:191.

Page 846 ***palmi*** Hansen. Add:
REFERENCES: (**ds**) Pfeffer 1994c:193. (**tx**) Pfeffer 1994a:167, 1994c:193.

Page 846 ***populi*** Hopkins. Add:
REFERENCES: (**ds**) Dearborn & Donahue 1993:80.

Page 846 ***rybinskii*** Reitter. Add:
FIGURES: Pfeffer 1994c:286 (elytral declivity), 287 (pronotum).
NOTES: Pfeffer 1994c:190 (recognizes two subspecies, *rybinskii* and *corsicus*).
HOSTS: *Duschekia alnobetula, Populus canadensis, P. nigra, Salix caprea, S. eleagnos, S. fragilis, S. purpurea,* S. spp.
REFERENCES: (**ds**) Burakowski et al. 1992:108; Pfeffer 1994c:190. (**hb**) Koch 1992:160. (**tx**) Burakowski et al. 1992:108; Pfeffer 1994a:166, 1994c:190.

Page 846 *corsicus* Eggers (synonym of ***rybinskii*** Reitter). Add:
REFERENCES: **(ds)** Pfeffer 1994c:190. **(tx)** Pfeffer 1994c:190.

Page 847 *rybinskii salicis* Stark (synonym of ***rybinskii*** Reitter). Add:
REFERENCES: **(tx)** Michalski 1969a:893, 1969b:568.

Page 847 ***striatulus*** (Mannerheim). Add:
REFERENCES: **(ds)** Furniss et al. 1992:375; Laplante et al. 1991:116. **(hb)** Furniss et al. 1992:375.

Page 847 ***thatcheri*** (Wood). Add:
REFERENCES: **(ds)** Furniss et al. 1992:375. **(hb)** Furniss et al. 1992:375.

Page 847 ***tremulae*** Stark. Add:
FIGURES: Pfeffer 1994c:286 (vestiture).
DISTRIBUTION: EUROPE: Bulgaria, Slovakia.
HOSTS: *Populus alba, P. nigra.*
REFERENCES: **(ds)** Pfeffer 1994c:192. **(hb)** Koch 1992:160. **(tx)** Pfeffer 1994a:167, 1994c:192.

Genus **Procryphalus** Hopkins

Page 848 ***fraxini*** (Berger). Add:
REFERENCES: **(tx)** Schedl 1979c:99.

Page 848 ***mucronatus*** (LeConte). Add:
REFERENCES: **(ds)** Furniss et al. 1992:375. **(hb)** Furniss et al. 1992:375.

Genus **Ernoporicus** Berger

Page 848 **Ernoporicus** Berger. Add:
KEYS: Pfeffer 1994c:186 (to Palearctic species).
REFERENCES: **(tx)** Pfeffer 1994c:186.

Page 849 ***caucasicus*** (Lindemann). Add:
FIGURES: Lekander 1968:169 (larval characters); Pfeffer 1994c:285 (habitus).
DISTRIBUTION: EUROPE: Norway, Romania, S. Russia, Switzerland, Ukraine, United Kingdom.
HOSTS: *Tilia cordata, T. platyphyllos, Ulmus glabra,* rare in *Fraxinus* sp.
REFERENCES: **(an)** Aksent'yev 1992(1993):127; Lekander 1968:66, 169. **(cn)** Hyman 1992:399. **(ds)** Aksent'yev 1992(1993):127; Burakowski et al. 1992:108; Gogniat 1991:29; Hyman 1992:399; Pfeffer 1994c:187. **(ec)** Hyman 1992:399. **(hb)** Aksent'yev 1992(1993):127; Koch 1992:162. **(tx)** Burakowski et al. 1992:108; Lekander 1968; Pfeffer 1994c:187.

Page 850 ***fagi*** (Fabricius). Add:
FIGURES: Lekander 1968:168 (larval characteristics); Pfeffer 1994c:285 (habitus).
DISTRIBUTION: EUROPE: S. Russia, Ukraine, United Kingdom.
HOSTS: *Fagus macrophylla.*

REFERENCES: (**an**) Lekander 1968:66. (**bv**) Otte 1989:239. (**cn**) Hyman 1992:339. (**ds**) Burakowski et al. 1992:109; Gogniat 1991:28; Hansen et al. 1991a:20; Hyman 1992:339; Lhost 1991; Michalski & Ratajczak 1994; Owen 1993:160; Pfeffer 1994c:187; Schott 1986:57; Titovsek 1983:404; Whitehead 1992b:230. (**ec**) Eckloff & Ziegler 1991; Hyman 1992:339; Michalski & Ratajczak 1994; Otte 1989:239. (**hb**) Koch 1992:161; Owen 1993. (**tx**) Burakowski et al. 1992:109; Lekander 1968; Pfeffer 1994c:187.

Genus **Allernoporus** Kurenzov

Page 852 ***euonymi*** Kurenzov. Add:
NOTES: Correct type locality to: "Source of Suputinka R., S. Ussuri Terr."

Genus **Stegomerus** Wood

Page 852 **Stegomerus** Wood. Add:
KEYS: Wood, Stevens, & Lezama 1991b:300 (to Costa Rican species).
REFERENCES: (**tx**) Wood, Stevens, & Lezama 1991b:300.

Page 852 ***chiriquensis*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:301. (**tx**) Wood, Stevens, & Lezama 1991b:301.

Page 852 ***mexicanus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Veracruz**).
HOSTS: *Passiflora* sp.
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:464. (**hb**) Noguera-Martinez & Atkinson 1990:464.

Page 852 ***montanus*** Wood. Add:
REFERENCES: (**ds**) Wood 1982b:856; Wood, Stevens & Lezama 1991b:301. (**tx**) Wood 1982b:856; Wood, Stevens, & Lezama 1991b:301.

Page 852 ***pygmaeus*** Wood. Add:
REFERENCES: (**ds**) Equihua-Martinez & Atkinson 1986:633; Wood, Stevens, & Lezama 1991b:300. (**ec**) Equihua-Martinez & Atkinson 1986:633. (**hb**) Equihua-Martinez & Atkinson 1986:633. (**tx**) Wood, Stevens, & Lezama 1991b:300.

Page 852 ***vulgaris*** Wood. Add:
REFERENCES: (**ds**) Wood 1982b:857; Wood, Stevens, & Lezama 1991b:300. (**tx**) Wood 1982b:857; Wood, Stevens, & Lezama 1991b:300.

Genus **Acorthylus** Brethes

Page 853 ***bosqui*** (Schedl). Add:
DISTRIBUTION: SOUTH AMERICA: Bolivia, Brazil, Chile.

Page 853 ***gracilis*** (Schedl). Add:
DISTRIBUTION: SOUTH AMERICA: Bolivia.

Genus **Stephanopodius** Schedl

Page 853 ***dispar*** (Eggers). Add:

REFERENCES: (**hb**) Beaver & Löyttyniemi 1991.

Genus **Coriacephilus** Schedl

Page 854 ***cribripennis*** Schedl. Add:

REFERENCES: (**ds**) Schedl 1966b:28. (**tx**) Nobuchi 1983:301.

Genus **Ernoporus** Thompson

Page 854 **Ernoporus** Thomson. Add:

KEYS: Lekander 1968:65 (to larvae of Scandinavian species); Pfeffer 1994c:186.

REFERENCES: (**an**) Lekander 1968:64. (**tx**) Lekander 1968:64; Pfeffer 1994c:186.

Page 855 ***tiliae*** (Panzer). Add:

FIGURES: Lekander 1968:68 (larval characters); Pfeffer 1994c:285 (habitus).

DISTRIBUTION: EUROPE: Slovenia, United Kingdom.

HOSTS: *Tilia argentia, T. grandifolia, T. platyphyllos, T. rubra, T. tomentosa.*

REFERENCES: (**an**) Lekander 1968:65. (**cn**) Hyman 1992:400. (**ds**)Burakowski et al. 1992:110; Hyman 1992:400; Michalski & Ratajczak 1994; Schott 1986:57; Titovsek 1983:405. (**ec**) Hyman 1992:400; Michalski & Ratajczak 1994; Michalski, Kaczmarek, & Ratajczak 1992b:145. (**hb**) Koch 1992:162. (**tx**) Burakowski et al. 1992:110; Lekander 1968:65.

Genus **Ernocladius** Wood

Page 857 ***corpulentus*** (Sampson). Add:

HOSTS: *Cynomerta ramiflora.*

Genus **Scolytogenes** Eichhoff

Page 858 **Scolytogenes** Eichhoff. Add:

KEYS: Wood, Stevens, & Lezama 1991b:301 (to Costa Rican species).

REFERENCES: (**tx**) Wood, Stevens, & Lezama 1991b:301.

Page 859 ***ater*** (Eggers). Add:

HOSTS: *Excoecaria dallachyana.*

Page 861 ***gracilis*** (Schedl). Add:

REFERENCES: (**ds**) Browne 1974a:63.

Page 862 ***grobleri*** (Schedl). Add:

HOSTS: *Diospyros whyteana.*

REFERENCES: (**ds**) Schedl 1965h:111.

Page 862 ***jalapae*** (Letzner). Add:

DISTRIBUTION: EUROPE: Poland.

REFERENCES: (**ds**) Burakowski et al. 1992:111. (**tx**) Burakowski et al. 1992:111.

Page 862 ***knabi*** (Hopkins). Add:
REFERENCES: **(ds)** Atkinson & Peck 1994:326; Wood, Stevens, & Lezama 1991b:301. **(hb)** Atkinson & Peck 1994:326. **(tx)** Wood, Stevens, & Lezama 1991b:301.

Page 864 ***parvatis*** (Wood). Add:
HOSTS: Leguminosae.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:301. **(tx)** Wood, Stevens, & Lezama 1991b:301.

Page 865 ***samoanus*** (Browne). Move to ***Hypothenemus curtipennis*** (Schedl) as a subspecies. (Probable synonym [DEB]).

Page 866 ***tricolor*** (Lea). Add:
FIGURES: Zimmerman 1992:621 (adult).

Page 866 ***uncatus*** (Schedl). Move to **Ptilopodius** Hopkins.

Page 866 ***ater*** Schedl (listed as synonym of ***uncatus*** (Schedl)). Remove from synonymy, move to **Ptilopodius** Hopkins.

Page 866 ***usagaricus*** (Eggers). Add:
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: **(ds)** Medler 1980:289.

Genus **Hemicryphalus** Schedl

Page 866 **Hemicryphalus** Schedl. Add:
KEYS: Bright 1992b:184.
REFERENCES: **(tx)** Bright 1992b:183.

Page 867 ***argutus*** (Wood). Add:
REFERENCES: **(tx)** Bright 1992b:185.

Page 867 ***atomus*** (Wood). Add:
REFERENCES: **(tx)** Bright 1992b:186.

Page 867 ***incomptus*** (Wood). Add:
REFERENCES: **(tx)** Bright 1992b:185.

Add species: ***kinabaluensis*** Bright 1992b:186. Holotype (sex ?); Borneo, Sabah, Mount Kinabalu National Park, New Hut, 3343 m; DEBC, Ottawa.
FIGURES: Bright 1992b:186 (habitus, elytral declivity).
DISTRIBUTION: ASIA: Malaysia (Sabah).
HOSTS: Trunk of large fallen tree.
REFERENCES: **(tx)** Bright 1992b:186.

minutus Bright 1992b:187. Holotype (sex ?); Borneo, Sabah, Mount Kinabalu National Park, Pinosuk Plateau, 1800 m; DEBC, Ottawa.
FIGURES: Bright 1992b:185 (habitus, elytral declivity).
DISTRIBUTION: ASIA: Malaysia (Sabah).
HOSTS: Small branch of *Podocarpus* sp.
REFERENCES: **(tx)** Bright 1992b:187.

podocarpi Bright 1992b:188. Holotype (sex ?); Borneo, Sabah, Mount Kinabalu National Park, Pinosuk Plateau, 1800 m; DEBC, Ottawa.
FIGURES: Bright 1992b:186 (habitus, elytral declivity).
DISTRIBUTION: ASIA: Malaysia (Sabah).

HOSTS: Small branches of *Podocarpus* sp.
REFERENCES: (**tx**) Bright 1992b:188.

squamosus Bright 1992b:189. Holotype (sex ?); Borneo, Sabah, Mount Kinabalu National Park, New Hut, 3343 m; DEBC, Ottawa.
FIGURES: Bright 1992b:188 (habitus, elytral declivity).
DISTRIBUTION: ASIA: Malaysia (Sabah).
HOSTS: Trunk and branches of *Rhododendron* sp.
REFERENCES: (**tx**) Bright 1992b:189.

Genus **Eidophelus** Eichhoff

Page 867 ***borneensis*** Browne. Move to **Cyrtogenius**.

Page 867 ***gracilis*** Browne. Move to **Cyrtogenius**.

Genus **Hypocryphalus** Hopkins

Page 869 ***mangiferae*** (Stebbing). Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Oahu).
HOSTS: *Hibiscus tiliaceus, Shorea robusta, Swintonia floribunda.*
REFERENCES: (**ds**) Atkinson & Peck 1994:324; Nishida 1992:74; Wood, Stevens, & Lezama 1991a:135. (**hb**) Atkinson & Peck 1994: 324. (**tx**) Wood, Stevens, & Lezama 1991a:135.

Page 870 *griseus* Blackburn (synonym of ***mangiferae*** (Stebbing)). Add:
REFERENCES: (**ds**) Nishida 1992:74.

Page 871 ***perminimus*** (Schedl). Add:
HOSTS: *Sloetia elongata, Terminalia* sp.
REFERENCES: (**ds**) Ohno 1990c:84.

Page 872 ***spathulatus*** Schedl. Add:
FIGURES: Zimmerman 1992:625 (adult).

Page 872 *tongaensis* Schedl. Move to ***mollis*** (Schedl) as a synonym.
SYNONYMY: by Beaver 1987b:67.

Add species: ***mollis*** (Schedl) from **Cryphalus**. Add:
DISTRIBUTION: OCEANIA: Tonga (Tongatapu).
REFERENCES: (**tx**) Beaver 1987b:67.

tongaensis Schedl. Synonymy by Beaver 1987b:67.

Genus **Cryphalus** Erichson

Page 872 **Cryphalus** Erichson. Add:
KEYS: Lekander 1968:62 (to larva of Scandinavian species); Pfeffer 1994c:184 (to Palearctic species).
REFERENCES: (**an**) Lekander 1968:61. (**ds**) Basset 1991. (**tx**) Lekander 1968:68; Pfeffer 1994c:184.

Page 872 *Jugocryphalus* Tsai & Li (synonym of **Cryphalus** Erichson). Add:
KEYS: Yin, Huang, & Li 1984:97 (to Chinese species).
REFERENCES: (**tx**) Yin, Huang, & Li 1984:97.

Page 873 ***artocarpus*** (Schedl). Add:
HOSTS: *Artocarpus diversifolium, A. elastica.*
REFERENCES: **(ds)** Ohno 1990c:84.

Page 874 ***asperatus*** (Gyllenhal). Add:
FIGURES: Chararas 1962c:252 (adult); Grune 1979:100,101,106; Hopkins 1915c:221 pls. 9–10, fig. 1; Lekander 1968:167 (larval characters); Pfeffer 1994c:303 (gallery); Postner 1974:428 (adult).
DISTRIBUTION: EUROPE: Ireland.
HOSTS: *Abies alba, A. bornmuelleriana, A. pectinata, Chamaecyparis lawsoniana, Fagus sylvatica, Juniperus communis, Larix decidua, L. europaea, Picea abies, P. obovata, P. omorica, P. orientalis, Pinus nigra, P. pumila, P. strobus, P. sylvestris, Populus nigra, P. pyramidalis, P. tremula, Salix fragilis.*
REFERENCES: **(ds)** Michalski & Ratajczak 1994; Morris 1993:296; O'Conner, Winter, & Good 1991:404; Pfeffer 1994c:185; Schedl 1981b:73. **(ec)** Michalski & Ratajczak 1994. **(hb)** Koch 1992:160; Schedl 1981b:73. **(tx)** Pfeffer 1994c:185; Schedl 1981b:73.

Page 874 *abietis* Ratzeburg (synonym of ***asperatus*** (Gyllenhal)). Add:
NOTES: Pfeffer 1994c:185 (treated as a valid species).
REFERENCES: **(an)** Lekander 1968:62. **(bv)** Rauhut, Schmidt, & Schmidt 1993. **(ds)** Balazy & Michalski 1962a:202; Burakowski et al. 1992:111; Gogniat 1991:28; Kinsky & Zumr 1988; Pfeffer 1994c:185; Schott 1986:57; Titovsek 1983:404. **(ec)** Kinsky & Zumr 1988; Michalski, Kaczmarek, & Ratajczak 1992b:144. **(hb)** Balazy & Michalski 1962a:202; Koch 1992:161. **(tx)** Burakowski et al. 1992:111; Lekander 1968:62; Pfeffer 1994c:185.

Page 878 ***chinlingensis*** Tsai & Li. Add
REFERENCES: **(tx)** Yang & Sun 1991:65.

Page 878 ***cylindricus*** Browne. Add:
HOSTS: *Dipterocarpus* sp.
REFERENCES: **(ds)** Ohno 1990c:84.

Page 879 ***exiguus*** Blandford. Add:
HOSTS: *Morus* sp.
REFERENCES: **(cn)** Liu, Wang, & Wu 1990.

Page 880 ***fulvus*** Niisima. Add:
REFERENCES: **(cn)** Gohda et al. 1964. **(ds)** Lee et al. 1990:17. **(ec)** Lee et al. 1990:17; Urano & Hijii 1991; Yoshikawa & Kasahara 1991.

Page 881 ***intermedius*** Ferrari. Add:
FIGURES: Pfeffer 1994c:285 (habitus).
DISTRIBUTION: EUROPE: Slovenia, Switzerland.
HOSTS: *Larix decidua, L. europaea, L. polonica, Picea excelsa, Pinus montana, P. sylvestris.*
REFERENCES: **(ds)** Bernabò 1994; Burakowski et al. 1992:112; Pfeffer 1994c:185; Titovsek 1983:404. **(hb)** Koch 1992:161. **(tx)** Burakowski et al. 1992:112; Pfeffer 1994c:185.

Page 882 ***kesiyae*** Browne. Add:
HOSTS: *Pinus khasya*.
REFERENCES: **(ds)** Hutacharern et al. 1988:29.

Page 882 ***kurilensis*** Krivolutskaya. Add:
REFERENCES: **(ds)** Krivolutskaya 1968:53–56; **(hb)** Krivolutskaya 1968:53–56.

Page 883 ***laevis*** Browne. Add:
HOSTS: *Dipterocarpus* sp.
REFERENCES: **(ds)** Ohno 1990c:84.

Page 883 ***laricis*** Niisima. Add:
REFERENCES: **(hb)** Nishiguchi 1960a.

Page 883 ***lepocrinus*** Tsai & Li. Add:
REFERENCES: **(tx)** Yang & Sun 1991:65.

Page 884 ***markangensis*** Tsai & Li. Add:
REFERENCES: **(tx)** Yang & Sun 1991:65.

Page 884 ***massonianus*** Tsai & Li. Add:
REFERENCES: **(tx)** Yang & Sun 1991:65.

Page 884 ***minimus*** Eggers. Add:
REFERENCES: **(ds)** Schedl 1966b:17. **(tx)** Nobuchi 1983:300.

Page 884 ***miyalopiceus*** Tsai & Li. Add:
REFERENCES: **(tx)** Yang & Sun 1991:65.

Page 885 ***mollis*** Schedl. Move to **Hypocryphalus**.

Page 885 ***numidicus*** Eichhoff. Add:
DISTRIBUTION: EUROPE: France.
HOSTS: *Abies pinsapo*, *Cedrus atlantica*, *Pinus halepensis*.
REFERENCES: **(ds)** Pfeffer 1994c:185. **(tx)** Pfeffer 1994c:185.

Page 886 ***paganus*** Eichhoff. Add:
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: **(ds)** Medler 1980:289.

Page 886 ***piceae*** (Ratzeburg). Add:
FIGURES: Joly 1977:9 (gallery); Pfeffer 1994c:285 (elytral declivity).
DISTRIBUTION: EUROPE: Czechoslovakia.
HOSTS: *Abies alba*, *A. borisii regis*, *A. bornmuelleriana*, *A. nordmanniana*, *Larix decidua*, *L. europaea*, *Pinus sylvestris*, *Thujae* sp.
REFERENCES: **(bv)** Kohnle et al. 1992b. **(cn)** Chararas 1975c; Klein 1984; Kolk 1992. **(ds)** Balazy & Michalski 1962a:202; Burakowski et al. 1992:113; Gogniat 1991:28; Kinsky & Zumr 1988; Michalski & Ratajczak 1994; Pfeffer 1994c:184; Schott 1986:57; Titovsek 1983:403. **(ec)** Kinsky & Zumr 1988; Michalski & Ratajczak 1994; Michalski, Kaczmarek, & Ratajczak 1992b:144; Tsankov, Mirchev, & Ovcharov 1994; Tenkacova & Mituch 1988; Zabecki 1988. **(hb)** Balazy & Michalski 1962a:202; Klein 1984; Koch 1992:161; Tsankov, Mirchev, & Ovcharov 1994. **(tx)** Burakowski et al. 1992:113; Pfeffer 1994c:184.

Page 889 ***piceus*** Eggers. Add:
REFERENCES: (**hb**) Nishiguchi 1960a.

Page 889 ***pilosellus*** Erichson. Add:
FIGURES: Zimmerman 1992:619 (adult).

Page 889 ***pilosus*** Tsai & Li. Add:
REFERENCES: (**tx**) Yang & Sun 1991:65.

Page 889 ***pseudochinlingensis*** Tsai & Li. Add:
REFERENCES: (**tx**) Yang & Sun 1991:65.

Page 889 ***pseudotabulaeformis*** Tsai & Li. Add:
REFERENCES: (**tx**) Yang & Sun 1991:65.

Page 891 ***ruficollis*** Hopkins. Add:
REFERENCES: (**cn**) Robertson 1990. (**ds**) Dearborn & Donahue 1993:80; Laplante et al. 1991:116; Larochelle 1979:50. (**hb**) Robertson 1990.

Page 891 *fraseri* Hopkins (synonym of ***ruficollis*** Hopkins). Add:
REFERENCES: (**ds**) Laplante et al. 1991:116.

Page 892 ***saltuarius*** Weise. Add:
FIGURES: Lekander 1968:167 (larval characters).
HOSTS: *Abies pectinata, A. sibirica, Juniperus* sp., *Picea abies, Pinus nigra, P. nigra austriaca, P. sibirica, P. strobus, P. sylvestris.*
REFERENCES: (**an**) Lekander 1968:63. (**ds**) Burakowski et al. 1992:114; Pfeffer 1994c:185. (**hb**) Koch 1992:161. (**tx**) Burakowski et al. 1992:114; Lekander 1968:63; Pfeffer 1994c:185.

Page 893 ***scabricollis*** Eichhoff. Add:
REFERENCES: (**ds**) Schedl 1962b:186, 1975e:446.

Page 895 ***sinoabietis*** Tsai & Li. Add:
REFERENCES: (**tx**) Yang & Sun 1991:65.

Page 895 *sinoabietis opienensis* Tsai & Li (synonym of ***sinoabietis*** Tsai & Li). Add:
REFERENCES: (**tx**) Yang & Sun 1991:65.

Page 896 ***substriatus*** Schedl. Add:
HOSTS: *Parishia* sp.
REFERENCES: (**ds**) Ohno 1990c:84.

Page 896 ***sylvicola*** (Perkins). Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Kauai, Lanai, Maui, Oahu).
REFERENCES: (**ds**) Nishida 1992:73.

Page 896 ***szechuanensis*** Tsai & Li. Add:
REFERENCES: (**tx**) Yang & Sun 1991:66.

Page 896 *szechuanensis tehchangensis* Tsai & Li (synonym of ***szechuanensis*** Tsai & Li). Add:
REFERENCES: (**tx**) Yang & Sun 1991:66.

Page 896 ***tabulaeformis*** Tsai & Li. Add:
FIGURES: Xiao 1992:615 (adult).
REFERENCES: **(tx)** Yang & Sun 1991:66.

Page 896 *tabulaeformis chienzhuangensis* Tsai & Li (synonym of ***tabulaeformis*** Tsai & Li). Holotype ♂. Add:
FIGURES: Xiao 1992:615 (adult).
REFERENCES; **(ds)** Xiao 1992:615. **(tx)** Xiao 1992:615; Yang & Sun 1991:66.

Page 897 ***tenuis*** Schedl. Add:
HOSTS: *Alstonia* sp., *Arthrophyllum diversifolium, Barringtonia* sp., *Eugenia* sp., *Vitex* sp.

Page 897 ***trypanoides*** Beeson. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Oahu).
REFERENCES: **(ds)** Nishida 1992:73.

Page 897 ***viburni*** Stark. Add:
REFERENCES: **(tx)** Michalski 1969b:567.

Page 898 ***wapleri*** Eichhoff. Add:
FIGURES: Kuschel 1990:100 (adult).
DISTRIBUTION: OCEANIA: New Zealand.
REFERENCES: **(ds)** Kuschel 1990:76.

Genus **Ptilopodius** Hopkins

Page 900 ***marquesanus*** Beeson. Add:
REFERENCES: **(ds)** Beaver 1976b:536.

Page 900 ***pacificus*** Schedl. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii, Kauai, Lanai, Oahu).
HOSTS: *Hibiscus tiliaceus, Samanea saman.*
REFERENCES: **(ds)** Nishida 1992:74.

Add species: ***ater*** (Schedl). From ***Scolytogenes*** Eichhoff. Add:
REFERENCES: **(tx)** Beaver 1991b:93.

uncatus (Schedl). From ***Scolytogenes*** Eichhoff. Delete Tahiti and Niue Island from Distribution.
REFERENCES: **(tx)** Beaver 1991b:93.

Genus **Cosmoderes** Eichhoff

Page 902 ***sericeus*** (Schedl). Add:
DISTRIBUTION: ASIA: Borneo.

Genus **Cryptocarenus** Eggers

Page 902 **Cryptocarenus** Eggers. Add:
KEYS: Wood, Stevens, & Lezama 1991b:303 (to Costa Rican species).
REFERENCES: **(tx)** Wood, Stevens, & Lezama 1991b:303.

Page 903 ***diadematus*** Eggers. Add:
DISTRIBUTION: SOUTH AMERICA: Bolivia.
HOSTS: *Eucalyptus* sp.
REFERENCES: **(cn)** Zanuncio et al. 1993. **(ds)** Wood, Stevens, & Lezama 1991b:303. **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994. **(tx)** Wood, Stevens, & Lezama 1991b:303.

Page 903 ***heveae*** (Hagedorn). Add:
DISTRIBUTION: SOUTH AMERICA: Argentina, Tobago.
HOSTS: *Cassia siamea, Eucalyptus camaldulensis, E. tereticornis, Melicoccus bijugatus, Pinus halepensis.*
REFERENCES: **(ds)** Atkinson & Peck 1994:324; Fiorentino, Iturre, & Darchuk 1988. **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994. **(hb)** Atkinson & Peck 1994:324.

Page 903 ***laevigatus*** (Blandford). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:303. **(tx)** Wood, Stevens, & Lezama 1991b:303.

Page 903 ***lepidus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: **Dominica**.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:303. **(tx)** Wood, Stevens, & Lezama 1991b:303.

Page 904 ***seriatus*** Eggers. Add:
DISTRIBUTION: SOUTH AMERICA: Argentina, Colombia.
HOSTS: *Bursera simaruba, Eucalyptus camaldulensis, Melicoccus bijugatus, Oncideres* sp., *Serjania* sp.
REFERENCES: **(ds)** Atkinson & Peck 1994:324; Fiorentino, Iturre, & Darchuk 1988; Wood, Stevens, & Lezama 1991b:303. **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994. **(hb)** Atkinson & Peck 1994: 324. **(tx)** Wood, Stevens, & Lezama 1991b:303.

Genus **Hypothenemus** Westwood

Page 904 **Hypothenemus** Westwood. Add:
KEYS: Pfeffer 1994c:193 (to Palearctic species); Wood, Stevens, & Lezama 1991b:301 (to Costa Rican species).
REFERENCES: **(tx)** Lombardero 1994:373; Pfeffer 1994c:193; Wood, Stevens, & Lezama 1991b:301.

Page 906 ***acaciae*** (Eggers). Add:
DISTRIBUTION: AFRICA: South Africa.

Page 906 ***africanus*** (Hopkins). Add:
HOSTS: *Delonix regia.*
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:303. **(tx)** Wood, Stevens, & Lezama 1991b:303.

Page 906 ***agnatus*** (Eggers). Add:
HOSTS: *Acacia* sp.

Page 906 ***areccae*** (Hornung). Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Oahu); Tonga (Niuatoputapu).

REFERENCES: **(ds)** Atkinson & Peck 1994:324; Beaver 1987b:64; Equihua-Martinez 1992:60; Nishida 1992:74. **(hb)** Atkinson & Peck 1994:324.

Page 908 ***arundinis*** (Eichhoff). Add:
REFERENCES: **(ds)** Pfeffer 1994c:194. **(tx)** Pfeffer 1994c:194.

Page 908 ***ascitus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:302. **(tx)** Wood, Stevens, & Lezama 1991b:302.

Page 909 ***bezaziani*** Peyerimhoff. Add:
HOSTS: *Ceratonia siliqua, Gossypium herbaceum.*
REFERENCES: **(ds)** Pfeffer 1994c:195. **(tx)** Pfeffer 1994c:195.

Page 909 ***birmanus*** (Eichhoff). Add:
FIGURES: Zimmerman 1992:625 (adult).
DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii, Kauai, Lanai, Maui, Molokai, Oahu); Tonga (Niuatoputapu). SOUTH AMERICA: Equador (**Santa Cruz** in Galapagos Islands), Tobago.
HOSTS: *Parishia* sp., *Shorea* sp.
REFERENCES: **(ds)** Atkinson & Peck 1994:324; Beaver 1987b:64; Nishida 1992:74; Ohno 1990c:84; Peck & Kukulová-Peck 1990:1638; Wood, Stevens, & Lezama 1991b:301. **(hb)** Atkinson & Peck 1994:324. **(tx)** Wood, Stevens, & Lezama 1991b:301.

Page 910 *farinosus* Blandford (synonym of ***birmanus*** (Eichhoff)). Add:
REFERENCES: **(ds)** Nishida 1992:74.

Page 911 ***bolivianus*** (Eggers). Add:
REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Page 911 ***brunneus*** (Hopkins). Add:
REFERENCES: **(ds)** Atkinson & Peck 1994:324; Torres 1994a:26; Wood, Stevens, & Lezama 1991b:303. **(hb)** Atkinson & Peck 1994:324. **(tx)** Wood, Stevens, & Lezama 1991b:303.

Page 912 ***californicus*** Hopkins. Add:
HOSTS: ***Phoradendron*** sp.
REFERENCES: **(ds)** Atkinson & Peck 1994:324; Noguera-Martinez & Atkinson 1990:464. **(hb)** Atkinson & Peck 1994:324.

Page 912 ***columbi*** Hopkins. Add:
REFERENCES: **(ds)** Atkinson & Peck 1994:325; Wood, Stevens, & Lezama 1991b:303. **(hb)** Atkinson & Peck 1994:325. **(tx)** Wood, Stevens, & Lezama 1991b:303.

Page 913 ***concolor*** Hagedorn. Add:
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: **(ds)** Medler 1980:291.

Page 914 ***crudiae*** (Panzer). Add:
DISTRIBUTION: ATLANTIC ISLANDS: Azores. OCEANIA: Hawaiian Islands (Oahu); Fiji. SOUTH AMERICA: Ecuador (**San Cristóbal, Santa Cruz** in Galapogos Islands).
HOSTS: *Canarium* sp., *Ricinus communis.*

REFERENCES: **(cn)** Maes 1992:13. **(ds)** Atkinson & Peck 1994:325; Borgos 1990:116; Nishida 1992:74; Noguera-Martinez & Atkinson 1990:464; Torres 1994a:26; Wood, Stevens, & Lezama 1991b:302. **(hb)** Atkinson & Peck 1994:325; Weber & McPherson 1991. **(tx)** Wood, Stevens, & Lezama 1991b:302.

Page 916 ***curtipennis*** (Schedl). Add ***Scolytogenes samoanus*** (Browne) as a subspecies. Add:

curtipennis curtipennis:

DISTRIBUTION: OCEANIA: Fiji.

HOSTS: *Commersonia bartramia, Myristica* sp., *Palaquium hornei, P.* sp., *Parasponia andersonii, Planchonella linggensis.*

REFERENCES: **(an)** Beaver 1986. **(hb)** Beaver 1986. **(tx)** Beaver 1986.

curtipennis samoanus:

DISTRIBUTION: OCEANIA: Western Samoa.

HOSTS: *Psidium guajava, Theobroma cacao.*

REFERENCES: **(an)** Beaver 1986. **(hb)** Beaver 1986. **(tx)** Beaver 1986.

Page 916 ***dipterocarpi*** Hopkins. Add:

DISTRIBUTION: OCEANIA: Hawaiian Islands (Oahu).

HOSTS: *Gmelina* sp., *Shorea* sp.

REFERENCES: **(ds)** Nishida 1992:74; Ohno 1990c:84.

Page 916 ***dissimilis*** (Zimmermann). Add

REFERENCES: **(ds)** Atkinson & Peck 1994:325; Laplante et al. 1991:116; Larochelle 1979:50. **(hb)** Atkinson & Peck 1994:325; Weber & McPherson 1991.

Page 917 ***dolosus*** Wood. Add:

DISTRIBUTION: NORTH AMERICA: **Jamaica**, Mexico (Oaxaca).

HOSTS: *Pouteria neglecta.*

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:302. **(tx)** Wood, Stevens, & Lezama 1991b:302.

Page 917 ***donisi*** (Schedl). Add:

DISTRIBUTION: AFRICA: Côte d'Ivorie.

REFERENCES: **(ds)** Medler 1980:290.

Page 918 ***erectus*** LeConte. Add:

HOSTS: *Inga vera, Persea americana, Pouteria neglecta, P. sapota, Vitis* sp.

REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:464; Wood, Stevens, & Lezama 1991b:301. **(tx)** Wood, Stevens, & Lezama 1991b:301.

Page 919 ***eruditus*** Westwood. Add:

FIGURES: Aksent'yev 1992(1993):125 (larval characters); Lombardero 1994:378, Plate 9 (adult features, aedeagus); Zimmerman 1992:625 (adult).

DISTRIBUTION: ATLANTIC ISLANDS: Azores. OCEANIA: Hawaiian Islands (Hawaii, Kauai, Kure, Laysan, Maui, Oahu); Tonga (Niuatoputapu, Tongatapu). SOUTH AMERICA: Argentina, Equador (**Española, Genovesa, Isabela, Marchena, Santa Cruz** in Galapagos Islands), Tobago.

HOSTS: *Broussonetia kazinoki, Camplylotropis macrocarpa, Celtis tenuifolia, Cornus walteri, Enterolobium schomborgkii, Esenbeckia pentaphylla, Fagus* sp., *Ficus carica, Forsythia ovata, Fraxinus carica, Gmelina arborea, Hevea brasiliensis, Irvingia malayana, Juglans regia, Koompassia excelsa, Lespedeza maximowizii, Lonchocarpus guatemalensis, Malus domestica, Mangifera* sp., *Melicoccus bijugatus, Meliosma oldhami, Mezilaurus itauba, Olmeca recta, Petrocarya graeca, Petrocarya* sp., *Prunus persica, Psidium guajava, Quararibea* sp., *Quercus robur, Rhus radicans, Ricinus communis, Securinega suffructicosa, Shorea* sp., *Sindora siamensis, Vitis* sp.

REFERENCES: **(cn)** Jones & Caprio 1992; Montagon et al. 1993; Santos 1988. **(ds)** Abreu 1992; Atkinson & Peck 1994:325; Beaver 1987b:65; Borges 1990:116; Bright, Skidmore, & Dunster 1994; Fiorentino, Iturre, & Darchuk 1988; Hutacharern et al. 1988:34; Lee et al. 1990:17; Lombardero 1994:376; Nishida 1992:74; Noguera-Martinez & Atkinson 1990:464; Peck & Kukulová-Peck 1990:1638; Pfeffer 1994c:194; Sukartana 1989b:38; Torres 1994a:26; Wood, Stevens, & Lezama 1991b:302. **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994. **(hb)** Abreu 1992; Atkinson & Peck 1994:325; Beaver & Löyttyniemi 1991; Jones & Caprio 1992; Weber & McPherson 1991. **(tx)** Lombardero 1994:376; Pfeffer 1994c:194; Wood, Stevens, & Lezama 1991b:302.

Page 920 *aspericollis* Wollaston (synonym of ***eruditus*** Westwood). Add:

REFERENCES: **(ds)** Fernandez Fernandez 1992:525.

Page 924 *lezjavai* Pjatnitskii (synonym of ***eruditus*** Westwood). Add:

REFERENCES: **(an)** Aksent'yev 1992(1993):127. **(ds)** Aksent'yev 1992(1993):127. **(hb)** Aksent'yev 1992(1993):127.

Page 925. *mauiensis* Schedl (synonym of ***eruditus*** Westwood). Add:

REFERENCES: **(ds)** Nishida 1992:74

Page 925 *parilis* Schedl (synonym of ***eruditus*** Westwood). Add:

REFERENCES: **(tx)** Marinoni et al. 1992:124.

Page 925 ***eximius*** Schedl. Add:

REFERENCES: **(tx)** Marinoni et al. 1992:124.

Page 926 ***fuscicollis*** (Eichhoff). Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:301. **(tx)** Wood, Stevens, & Lezama 1991b:301.

Page 926 ***gossypii*** (Hopkins). Add:

REFERENCES: **(ds)** Atkinson & Peck 1994:325. **(hb)** Atkinson & Peck 1994:325.

Page 927 ***hampei*** (Ferrari). Add:

FIGURES: Booth, Cox, & Madge 1990:196 (adults).

DISTRIBUTION: EUROPE: Poland. NORTH AMERICA: Mexico (Chiapas, Guerrero, Oaxaca, Pueblo, Veracruz).

REFERENCES: **(bv)** Giordanengo, Brun, & Frerot 1993. **(cn)** Agnihothrudu 1991; Anonymous 1992b, 1993c, 1994a; Barrera et al.

1990a, 1990b, 1991; Brun & Suckling 1991, 1992, 1993; Brun et al. 1991, 1994; Campos, Decazy, & Carrillo 1991; Carrillo, Ochoa, & Decazy 1989; Castro 1990; ffrench-Constant, Steichen, & Brun 1994; Locatelli & Vigano 1991; Mansingh 1991; Murphy & Moore 1990; Murphy & Rangi 1991; Parkin, Brun, & Suckling 1992; Remond et al. 1993; Singh & Ramani 1994; Sreedharan et al. 1994; Villacorta & Barrera 1993; Villanuera Marrufo, Dominguez Rivero & Ayala Orduno 1988; Waterhouse & Norris 1989. **(ds)** Burakowski et al. 1992:14; Booth, Cox, & Madge 1990:196; Cox 1990; Infante et al. 1994a, 1994b; Kumar, Prakasan, & Vijayalakshmi 1990; Singh & Ramani 1994. **(ec)** Abraham, Moore, & Godwin 1990; Baker & Barrera 1993; Baker, Barrera, & Rivas 1992; Baker et al. 1992; Barrera et al. 1990a, 1990b, 1991; Booth, Cox, & Madge 1990:196; Bridge et al. 1990; Brun & Decazy 1992; Brun et al. 1993; Feldhege 1992; Filho, Cruz, & Abrahao 1989; Infante et al. 1992, 1994a, 1994b; LaSalle 1990; Moore, Abraham, & Mills 1990; Murphy & Moore 1990; Singh & Ramani 1994; Sreedharan et al. 1994; Vilas Boas & Alves 1988; Villacorta & Barrera 1993; Waterhouse & Norris 1989. **(hb)** Anonymous 1994a; Baker & Barrera 1993; Baker, Barrera, & Rivas 1992; Baker et al. 1992; Bautista Martinez & Atkinson 1988; Booth, Cox, & Madge 1990:196; Brun, Gaudichon, & Wigley 1993; Castro 1990; Villacorta & Barrera 1993. **(ms)** Campos, Decazy, & Carrillo 1991. **(tx)** Booth, Cox, & Madge 1990:196: Burakowski et al. 1992:14.

Page 930 ***hirsutus*** (Wood). Add:

REFERENCES: **(ds)** Atkinson & Peck 1994:325. **(hb)** Atkinson & Peck 1994:325.

Page 931 ***insignis*** Browne. Add:

HOSTS: *Parishia* sp.

REFERENCES: **(ds)** Ohno 1990c:84.

Page 931 ***interstitialis*** (Hopkins). Add:

HOSTS: *Inga* sp., *Struthanthus* sp., *Tithonia* sp.

REFERENCES: **(ds)** Atkinson & Peck 1994:325; Wood, Stevens, & Lezama 1991b:302. **(hb)** Atkinson & Peck 1994:325; Weber & McPherson 1991. **(tx)** Wood, Stevens, & Lezama 1991b:302.

Page 932 ***javanus*** (Eggers). Add:

DISTRIBUTION: OCEANIA: Hawaiian Islands (Molokai).

REFERENCES: **(ds)** Atkinson & Peck 1994:325; Nishida 1992:74. **(hb)** Atkinson & Peck 1994:325.

Page 933 ***leprieuri*** (Perris). Add:

DISTRIBUTION: ASIA: Cyprus.

HOSTS: *Ficus carica.*

REFERENCES: **(ds)** Pfeffer 1994c:195. **(tx)** Pfeffer 1994c:195.

Page 935 ***melasomus*** (Lea). Add:

FIGURES: Zimmerman 1992:627 (adult).

Page 935 ***miles*** (LeConte). Add:

REFERENCES: **(ds)** Atkinson & Peck 1994:326. **(hb)** Atkinson & Peck 1994:326.

Page 935 ***morio*** (Eggers). Add:
REFERENCES: **(ds)** Schedl 1965g:19

Page 935 ***mozambiquensis*** Eggers. Add:
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: **(ds)** Medler 1980:290.

Page 936 ***multidentatus*** (Hopkins). Add
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:302. **(tx)** Wood, Stevens, & Lezama 1991b:302.

Page 936 ***nanellus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:302. **(tx)** Wood, Stevens, & Lezama 1991b:302.

Page 936 ***novateutonicus*** (Schedl). Add:
REFERENCES: **(tx)** Marinoni et al. 1992:125.

Page 936 ***oblongus*** (Nobuchi). Delete: "Wood 1992 (in press)". Add:
REFERENCES: **(tx)** Wood 1992:81.

Page 936 ***obscurus*** (Fabricius). Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii). SOUTH AMERICA: Argentina, Ecuador (**Isabella, San Cristóbal, Santa Cruz, Santiago** in Galapogos Islands).
HOSTS: *Delonix regia, Eucalyptus camaldulensis, E. tereticornis, Macadamia* sp., *Pinus halepensis, Terminalia catappa.*
REFERENCES: **(cn)** Beardsley 1990; Delate, Armstrong, & Jones 1994; Jones, Burnham-Larish, & Caprio 1992. **(ds)** Atkinson & Peck 1994:326; Fiorentino, Iturre, & Darchuk 1988; Nishida 1992:74; Torres 1994a:26; Wood, Stevens, & Lezama 1991b:302. **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994. **(hb)** Atkinson & Peck 1994: 326. **(tx)** Wood, Stevens, & Lezama 1991b:302.

Page 937 ***opacus*** (Eichhoff). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991b:302. **(tx)** Wood, Stevens, & Lezama 1991b:302.

Page 938 ***parallelus*** (Hopkins). Add:
REFERENCES: **(ds)** Nishida 1992:74.

Page 938 ***parvulus*** Browne. Add:
HOSTS: *Hevea brasiliensis.*
REFERENCES: **(cn)** Hong et al. 1982.

Page 938 ***plumeriae*** (Nordlinger). Add:
DISTRIBUTION: SOUTH AMERICA: Equador (**Santa Cruz** in Galapagos Islands), Tobago.

Page 938 *cylindricus* Hopkins (synonym of ***plumeriae*** (Nordlinger)). Add:
REFERENCES: **(ds)** Peck & Kukulová-Peck 1990:1639; Wood, Stevens, & Lezama 1991b:303. **(tx)** Wood, Stevens, & Lezama 1991b:303.

Page 939 ***pubescens*** Hopkins. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Hawaii, Lanai, Maui, Molokai, Oahu).

REFERENCES: (**ds**) Atkinson & Peck 1994:326; Nishida 1992:74. (**hb**) Atkinson & Peck 1994:326.

Page 940 ***ruficeps*** Perkins. Add:
DISTRIBUTION: OCEANIA: Hawaiian Islands (Maui, Oahu).
REFERENCES: (**ds**) Nishida 1992:74.

Page 940 ***seriatus*** (Eichhoff). Add:
FIGURES: Zimmerman 1992:627 (adult).
DISTRIBUTION: OCEANIA: Samoa, Tonga (Niuatoputapu).
HOSTS: *Cupressus lusitanica, Cyrilla racemiflora, Genipa americana, Hymenaea courbaril.*
REFERENCES: (**ds**) Atkinson & Peck 1994:326; Beaver 1987b:65; Nishida 1992:74; Noguera-Martinez & Atkinson 1990:464; Torres 1994a:26; Wood, Stevens, & Lezama 1991b:302. (**ec**) Torres 1994b:138. (**hb**) Atkinson & Peck 1994:326. (**tx**) Wood, Stevens, & Lezama 1991b:302.

Page 941 *aulmanni* Hagedorn (synonym of ***seriatus*** (Eichhoff)). Add:
REFERENCES: (**hb**) Beaver & Löyttyneimi 1991.

Page 941 *pulverulentus* Eichhoff (synonym of ***seriatus*** (Eichhoff)). Add:
REFERENCES: (**ds**) Nishida 1992:74.

Page 941 *vulgaris* Schaufuss (synonym of ***seriatus*** (Eichhoff)). Add:
REFERENCES: (**ds**) Nishida 1992:74.

Page 943 ***setosus*** (Eichhoff). Add:
DISTRIBUTION: AFRICA: Ghana, Kenya. ASIA: India, Java, Malaysia.
HOSTS: *Hevea brasiliensis, Psidium guajava.*
REFERENCES: (**cn**) Norhara Bt. Hussein 1981. (**ds**) Atkinson & Peck 1994:326; Sukartana 1989b:38; Wood, Stevens, & Lezama 1991b:303. (**hb**) Atkinson & Peck 1994:326; Norhara Bt. Hussein 1981. (**tx**) Wood, Stevens, & Lezama 1991b:303.

Page 944 *congonus* Hagedorn (synonym of ***setosus*** (Eichhoff)). Add:
REFERENCES: (**ds**) Schedl 1965g:19.

Page 944 ***socialis*** (Schedl). Add:
REFERENCES: (**ds**) Schedl 1965g:20.

Page 944 ***solitarius*** (Schedl). Add:
REFERENCES: (**ds**) Schedl 1965g:20.

Page 945 ***squamosus*** (Hopkins). Add:
DISTRIBUTION: SOUTH AMERICA: Tobago.
HOSTS: *Melicoccus bijugatus.*
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:464. (**hb**) Noguera-Martinez & Atkinson 1990:464.

Page 946 ***suspectus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:303. (**tx**) Wood, Stevens, & Lezama 1991b:303.

Page 946 ***teretis*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:303. (**tx**) Wood, Stevens, & Lezama 1991b:303.

Page 946 ***trinitatis*** (Hopkins). Add:
HOSTS: *Guarea guidonia.*
REFERENCES: (**ds**) Torres 1994a:26.

Page 946 ***trivialis*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1991b:302. (**tx**) Wood, Stevens, & Lezama 1991b:302.

Add species: ****avitus*** Bright & Poinar 1994:186. Holotype (sex?); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:187.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: (**tx**) Bright & Poinar 1994.

Genus **Trischidias** Hopkins

Page 947 **Trischidias** Hopkins. Add:
KEYS: Atkinson 1993a (to United States species).
REFERENCES: (**tx**) Atkinson 1993a.

Page 947 ***atoma*** (Hopkins). Add:
FIGURES: Atkinson 1993a:419 (habitus).
DISTRIBUTION: NORTH AMERICA: United States (Indiana).
HOSTS: *Carya illinoensis, Cestrum nocturnum, Ficus aurea, Ilex opaca, Rhododendron* sp., *Toxicodendron radicans, Ulmus americana.*
REFERENCES: (**ds**) Atkinson 1993a:418; Atkinson & Peck 1994:326. (**hb**) Atkinson 1993a:418; Atkinson & Peck 1994:326. (**tx**) Atkinson 1993a:418.

Page 947 ***exigua*** Wood. Add:
FIGURES: Atkinson 1993a:419 (habitus).
HOSTS: Ascomycete fruiting bodies on branches of *Carya.*
REFERENCES: (**ds**) Atkinson 1993a:420; Atkinson & Peck 1994: 326; Frank & McCoy 1992:6. (**hb**) Atkinson 1993a:420; Atkinson & Peck 1994:326; (**tx**) Atkinson 1993a:420.

Page 947 ***georgiae*** Hopkins. Add:
REFERENCES: (**tx**) Atkinson 1993a:421.

Page 947 ***minutissima*** Wood. Add:
HOSTS: *Avicennia germinans.*
REFERENCES: (**ds**) Atkinson 1993a:421; Atkinson & Peck 1994: 326. (**hb**) Atkinson & Peck 1994:326. (**tx**) Atkinson 1993a:421.

Add species: ***striata*** Atkinson 1993a:422. Holotype (♀); Florida, Sugarloaf Key [USA]; USNM.
FIGURES: Atkinson 1993a:419 (habitus).
DISTRIBUTION: NORTH AMERICA: United States: (Florida).
REFERENCES: (**ds**) Atkinson 1993a:422; Atkinson & Peck 1994: 327. (**hb**) Atkinson & Peck 1994:327. (**tx**) Atkinson 1993a:422.

TRIBE CORTHYLINI

Page 949 **Corthylini.** Add:
KEYS: Pfeffer 1994c:171 (to subtribes).
REFERENCES: **(tx)** Lombardero 1994:381; Pfeffer 1994c:171.

Corthylini: Pityophthorina.

Page 949 **Pityophthorina.** Add:
KEYS: Pfeffer 1994c:172 (to Palearctic genera).
REFERENCES: **(tx)** Pfeffer 1994c:172.

Genus **Mimiocurus** Schedl

Page 950 ***tongatapui*** (Schedl). Move to **Liparthrum** Wollaston.

Genus **Styphlosoma** Blandford

Page 950 ***granulatum*** Blandford. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:136. **(tx)** Wood, Stevens, & Lezama 1991a:136.

Genus **Dendroterus** Blandford

Page 951 ***defectus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:250. **(tx)** Wood, Stevens, & Lezama 1992:250.

Page 951 ***parilis*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:248. **(tx)** Wood, Stevens, & Lezama 1992:248.

Page 951 ***resolutus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:250. **(tx)** Wood, Stevens, & Lezama 1992:250.

Page 952 ***sallaei*** Blandford. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:250. **(tx)** Wood, Stevens, & Lezama 1992:250.

Genus **Araptus** Eichhoff

Page 952 **Araptus** Eichhoff. Add:
REFERENCES: **(tx)** Pfeffer 1994c:173.

Page 953 ***aztecus*** (Wood). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Veracruz**).
HOSTS: *Licaria peckii, Nectandra* sp., *Quercus* sp.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:464. **(hb)** Noguera-Martinez & Atkinson 1990:464.

Page 953 ***blanditus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:252. **(tx)** Wood, Stevens, & Lezama 1992:252.

Page 954 ***conditus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:253. **(tx)** Wood, Stevens, & Lezama 1992:253.

Page 954 ***confinis*** (Blandford). Add:
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:464; Wood, Stevens, & Lezama 1992:251. **(tx)** Wood, Stevens, & Lezama 1992:251.

Page 954 ***costaricensis*** (Schedl). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:251. **(tx)** Wood, Stevens, & Lezama 1992:251.

Page 954 ***crassus*** (Schedl). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:252. **(tx)** Wood, Stevens, & Lezama 1992:252.

Page 955 *sulcatus* Schedl (synonym of ***cribricollis*** (Schedl)). Add:
REFERENCES: **(tx)** Marinoni et al. 1992:122.

Page 955 ***decorulus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:252. **(tx)** Wood, Stevens, & Lezama 1992:252.

Page 955 ***dentifrons*** Wood. Add:
REFERENCES: **(ds)** Atkinson & Peck 1994:327; Frank & McCoy 1992:5. **(hb)** Atkinson & Peck 1994:327.

Page 955 ***deyrollei*** (Blandford). Add:
HOSTS: *Gonolobus* sp.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:464. **(hb)** Noguera-Martinez & Atkinson 1990:464

Page 956 ***eruditus*** (Schedl). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Oaxaca).
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:253. **(tx)** Wood, Stevens, & Lezama 1992:253

Page 956 ***exigialis*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:253. **(tx)** Wood, Stevens, & Lezama 1992:253

Page 956 ***facetus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:251. **(tx)** Wood, Stevens, & Lezama 1992:251

Page 956 ***fossifrons*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Morelos)

Page 956 ***frugalis*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:253. **(tx)** Wood, Stevens, & Lezama 1992:253

Page 957 ***furvus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:254. **(tx)** Wood, Stevens, & Lezama 1992:254

Page 957 ***grandis*** (Schedl). Add:
REFERENCES: (**tx**) Marinoni et al. 1992:124

Page 957 ***hymenaeae*** (Eggers). Add:
DISTRIBUTION: SOUTH AMERICA: Tobago.
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:250. (**tx**) Wood, Stevens, & Lezama 1992:250

Page 958 ***laevigatus*** (Eggers). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:251. (**tx**) Wood, Stevens, & Lezama 1992:251

Page 958 ***laudatus*** Wood. Add:
DISTRIBUTION: NORTH AMERIC[illegible] Mexico (**Oaxaca**).
HOSTS: *Virola guatemalensis*.
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:251. (**tx**) Wood, Stevens, & Lezama 1992:251

Page 958 ***lepidus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:254. (**tx**) Wood, Stevens, & Lezama 1992:254

Page 958 ***leptus*** (Bright). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Jalisco**)

Page 959 ***macer*** (Bright). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:252. (**tx**) Wood, Stevens, & Lezama 1992:252

Page 959 ***medialis*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:253. (**tx**) Wood, Stevens, & Lezama 1992:253

Page 959 ***mendicus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:253. (**tx**) Wood, Stevens, & Lezama 1992:253

Page 959 ***minutissimus*** (Schedl). Add:
REFERENCES: (**tx**) Marinoni et al. 1992:122

Page 959 ***nigrellus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:254. (**tx**) Wood, Stevens, & Lezama 1992:254

Page 960 ***novateutonicus*** (Schedl). Add:
REFERENCES: (**tx**) Marinoni et al. 1992:123

Page 960 ***obscurus*** (Eggers). Add:
REFERENCES: (**tx**) Marinoni et al. 1992:124

Page 960 ***oleanderi*** (Schedl). Add:
NOTES: Pfeffer 1994c:173 (statement "comb. n." incorrect).
REFERENCES: (**ds**) Pfeffer 1994c:173. (**tx**) Pfeffer 1994c:173

Page 960 ***paranae*** (Schedl). Add:
REFERENCES: (**tx**) Marinoni et al. 1992:122

Page 960 ***politus*** (Blandford). Add:

REFERENCES: **(ds)** Atkinson & Peck 1994:327; Wood, Stevens, & Lezama 1992:251. **(hb)** Atkinson & Peck 1994:327. **(tx)** Wood, Stevens, & Lezama 1992:251.

Page 961 ***punctatissimus*** (Schedl). Add:

DISTRIBUTION: SOUTH AMERICA: Brazil.

Page 961 ***schwarzi*** (Blackman). Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:252. **(tx)** Wood, Stevens, & Lezama 1992:252.

Page 962 ***tabogae*** (Blackman). Add:

DISTRIBUTION: NORTH AMERICA: Mexico (Campeche, Jalisco).

HOSTS: *Gonolobus* sp.

REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:464; Wood, Stevens, & Lezama 1992:251. **(hb)** Noguera-Martinez & Atkinson 1990:464. **(tx)** Wood, Stevens, & Lezama 1992:251.

Page 962 ***tenellus*** (Schedl). Add:

DISTRIBUTION: NORTH AMERICA: Mexico (Oaxaca).

Page 962 ***teres*** (Blackman). Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:252. **(tx)** Wood, Stevens, & Lezama 1992:252.

Page 962 ***vesculus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:253. **(tx)** Wood, Stevens, & Lezama 1992:253.

Page 963 ***vinnulus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:254. **(tx)** Wood, Stevens, & Lezama 1992:254.

Genus **Conophthorus** Hopkins

Page 963 **Conophthorus** Hopkins. Add:

REFERENCES: **(an)** Haverty, Page, & Blomquist 1989. **(cn)** Bennett 1994; Grant 1994. **(tx)** Haverty, Page, & Blomquist 1989.

Page 963 ***conicolens*** Wood. Add:

DISTRIBUTION: NORTH AMERICA: Mexico (**Michoacán**).

REFERENCES: **(an)** Page et al. 1990b.

Page 963 ***coniperda*** (Schwarz). Add:

REFERENCES: **(an)** de Groot 1990; de Groot & Ennis 1990; de Groot, Harvey, & Roden 1992; Page et al. 1990b. **(bv)** de Groot et al. 1991. **(ds)** Dearborn & Donahue 1993:80; Laplante et al. 1991:116; Larochelle 1979:51. **(cn)** Valenti, Abrahamson, & Maynard 1990; Wade et al. 1989. **(hb)** Turgeon 1994; Weber & McPherson 1991. **(ms)** Hasegawa, Kamada, & Mori 1992. **(tx)** de Groot 1990; de Groot & Ennis 1990; de Groot, Harvey, & Roden 1992.

Page 964 ***edulis*** Hopkins. Add:

DISTRIBUTION: NORTH AMERICA: Mexico (**Nuevo León**).

REFERENCES: **(an)** Page et al. 1990b.

Page 964 *cembroides* Wood (synonym of ***edulis*** Hopkins). Add:
REFERENCES: (**an**) Page et al. 1990b.

Page 964 ***mexicanus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Chiapas**).

Page 965 ***ponderosae*** Hopkins. Add:
REFERENCES: (**an**) Page et al. 1990b. (**cn**) Rappaport et al. 1994; Shea, Haverty, & Daterman 1986; Wagner, Koerber, & Schmid 1986. (**hb**) Turgeon 1994. (**ms**) Shea, Haverty, & Daterman 1986.

Page 966 ***radiatae*** Hopkins. Add:
REFERENCES: (**an**) Page et al. 1990b. (**ec**) Storer & Dallara 1992; Storer et al. 1994.

Page 967 ***resinosae*** Hopkins. Add:
DISTRIBUTION: NORTH AMERICA: United States (Maine).
REFERENCES: (**an**) de Groot 1990, 1991; de Groot & Ennis 1990; de Groot, Harvey, & Roden 1992; Page et al. 1990b; Roden 1992. (**bv**) de Groot 1991; de Groot & Borden 1992; de Groot & Fleming 1994; Mattson & Strauss 1986. (**cn**) de Groot 1986, 1990; Hopkin 1994. (**ds**) Dearborn & Donahue 1993:80; Laplante et al. 1991:116; Larochelle 1979:51. (**hb**) de Groot 1990; Turgeon 1994. (**ms**) Hasegawa, Kamada, & Mori 1992. (**tx**) de Groot 1990, 1991; de Groot & Ennis 1990; de Groot, Harvey, & Roden 1992.

Page 967 *banksianae* McPherson (synonym of ***resinosae*** Hopkins). Add:
REFERENCES: (**an**) de Groot & Ennis 1990; de Groot, Harvey, & Roden 1992. (**bv**) de Groot & Borden 1992; Mattson & Strauss 1986. (**hb**) de Groot & Borden 1991; Mattson 1989. (**ms**) Hasegawa, Kamada, & Mori 1992; Syme 1990. (**tx**) de Groot & Ennis 1990; de Groot, Harvey, & Roden 1992.

Genus **Pityoborus** Blackman

Page 968 ***comatus*** (Zimmermann). Add:
REFERENCES: (**ds**) Atkinson & Peck 1994:327. (**hb**) Atkinson & Peck 1994:327.

Page 968 ***secundus*** Blackman. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Chiapas).

Genus **Dacnophthorus** Wood

Page 969 ***clematis*** (Wood). Add:
REFERENCES: (**tx**) Wood, Stevens, & Lezama 1991a:136.

Genus **Gnatholeptus** Blackman

Page 970 ***panamensis*** Blackman. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:257. (**tx**) Wood, Stevens, & Lezama 1992:257.

Page 970 ***semiermis*** (Nunberg). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:257. (**tx**) Wood, Stevens, & Lezama 1992:257.

Page 970 ***shannoni*** (Blackman). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:257. **(tx)** Wood, Stevens, & Lezama 1992:257.

Genus **Spermophthorus** Costa Lima

Page 971 ***aberrans*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:136. **(tx)** Wood, Stevens, & Lezama 1991a:136.

Page 971 ***apuleiae*** Costa Lima. Add:
REFERENCES: **(ds)** Schedl 1973d:155.

Genus **Pseudopityophthorus** Swaine

Page 972 ***asperulus*** (LeConte). Add:
REFERENCES: **(hb)** Weber & McPherson 1991.

Page 972 ***granulifer*** Wood. Add:
DISTRIBUTION: MEXICO: (Oaxaca, Sinaloa, **Veracruz**).
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:465.

Page 973 ***minutissimus*** (Zimmermann). Add:
REFERENCES: **(bv)** Dunn & Potter 1991:428. **(cn)** Dunn & Potter 1991:428. **(ds)** Laplante et al. 1991:116; Larochelle 1979:51. **(hb)** Weber & McPherson 1991.

Page 974 ***opacicollis*** Blackman. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Guerrero, Veracruz**).
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:465.

Page 974 ***pruinosus*** (Eichhoff). Add:
REFERENCES: **(hb)** Weber & McPherson 1991.

Page 975 ***pubescens*** Blackman. Add:
REFERENCES: **(hb)** Weber & McPherson 1991.

Page 976 ***singularis*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Durango, Nuevo León).
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:465.

Page 976 ***virilis*** Wood. Add:
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:465.

Page 976 ***xalapae*** Wood. Add:
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:465.

Genus **Pityophthorus** Eichhoff

Page 976 **Pityophthorus** Eichhoff. Add:
KEYS: Lekander 1968:82 (to larvae of Scandinavian species); Pfeffer 1994a:168 (to Central European species), 1994c:173 (to Palearctic species).

REFERENCES: **(an)** Lekander 1968:80. **(ds)** Hoganson & Ashworth 1992:108; Pfeffer 1994c:173. **(ec)** Dallara 1993. **(tx)** Lekander 1968: 80; Lombardero 1994:382; Pfeffer 1994a:168, 1994c:173.

Page 979 ***alni*** Blackman. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Puebla, Xalapa).
HOSTS: *Alnus acuminata.*
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:465. **(hb)** Noguera-Martinez & Atkinson 1990:465.

Page 980 ***amiculus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:255. **(tx)** Wood, Stevens, & Lezama 1992:255.

Page 980 ***annectens*** LeConte. Add:
FIGURES: Atkinson 1993b:613.
REFERENCES: **(cn)** Maes 1992:13. **(ds)** Atkinson & Peck 1994: 327. **(hb)** Atkinson & Peck 1994:327. **(ms)** Skirkevicius 1993:61. **(tx)** Atkinson 1993b.

Page 981 ***antillicus*** Bright. Add:
DISTRIBUTION: NORTH AMERICA: Virgin Islands (**St. Croix**).
REFERENCES: **(hb)** Haack, Billings, & Richter 1990.

Page 982 ***atomus*** Wood. Add:
HOSTS: *Tithonia* sp., *Vernonia* sp.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:465. **(hb)** Noguera-Martinez & Atkinson 1990:465.

Page 982 ***aztecus*** Bright. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Nuevo León, Veracruz).

Page 982 ***balcanicus*** Pfeffer. Add:
FIGURES: Pfeffer 1994c:290,291 (frons, elytral declivity).
DISTRIBUTION: EUROPE: Romania.
HOSTS: *Pinus nigra balcanica, P. nigra banatica, P. nigra bosniaca.*
REFERENCES: **(ds)** Pfeffer 1994c:179; Titovsek 1983:406. **(tx)** Pfeffer 1994c:179.

Page 982 ***balsameus*** Blackman. Add:
REFERENCES: **(ds)** Laplante et al. 1991:116.

Page 983 ***barbifer*** Schedl. Add.
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: **(ds)** Medler 1980:290.

Page 983 ***blackmani*** (Schedl). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:136. **(tx)** Wood, Stevens, & Lezama 1991a:136.

Page 984 ***borrichiae*** Wood. Add:
REFERENCES: **(ds)** Atkinson & Peck 1994:327. **(hb)** Atkinson & Peck 1994:327.

Page 985 ***briscoei*** Blackman. Add:
REFERENCES: **(ds)** Laplante et al. 1991:116.

Page 985 ***buyssoni*** Reitter. Add:
FIGURES: Pfeffer 1994c:290,291 (frons, elytral declivity).
HOSTS: *Pinus nigra cevennensis, P. nigra larico.*
NOTES: Pfeffer 1994c:179 (recognizes two subspecies, *buyssoni* and *angeri*).
REFERENCES: **(ds)** Pfeffer 1994c:179. **(tx)** Pfeffer 1994c:179.

Page 985 *angeri* Pfeffer (synonym of *buyssoni* Reitter). Add:
REFERENCES: **(ds)** Pfeffer 1994c:179. **(tx)** Pfeffer 1994c:179.

Page 986 ***carinatus carinatus*** Bright. Add:
REFERENCES: **(ds)** Laplante et al. 1991:116.

Page 986 ***cariniceps*** LeConte. Add:
REFERENCES: **(ds)** Laplante et al. 1991:116; Larochelle 1979:51. **(hb)** Weber & McPherson 1991.

Page 987 ***carmeli*** Swaine: Add:
REFERENCES: **(ec)** Fox et al. 1992a:157; Storer & Dallara 1992; Storer et al. 1994.

Page 987 ***carniolicus*** Wichmann. Add:
FIGURES: Pfeffer 1994c:291 (elytral declivity).
DISTRIBUTION: EUROPE: Slovenia, Switzerland.
HOSTS: *Picea excelsa, Pinus austriaca, P. nigra austriaca, Pseudotsuga menziesii.*
REFERENCES: **(ds)** Pfeffer 1994c:181; Titovsek 1983:406. **(hb)** Koch 1992:163. **(tx)** Pfeffer 1994a:170, 1994c:181.

Page 988 ***cephalonicae*** Pfeffer. Add:
REFERENCES: **(ds)** Pfeffer 1994c:180. **(tx)** Pfeffer 1994a:170, 1994c:180; Schawaller 1994:38.

Page 988 ***concavus*** Blackman. Add:
REFERENCES: **(ds)** Laplante et al. 1991:116.

Page 989 ***concentralis*** Eichhoff. Add:
FIGURES: Atkinson 1993b:609.
REFERENCES: **(ds)** Atkinson & Peck 1994:327. **(hb)** Atkinson & Peck 1994:327. **(tx)** Atkinson 1993b.

Page 989 ***confertus*** Swaine. Add:
REFERENCES: **(cn)** Rasmussen 1992. **(ec)** Bickel 1985. **(ms)** Skirkevicius 1993:61.

Page 990 ***confinis*** LeConte. Add:
REFERENCES: **(ds)** Elias 1992:289.

Page 990 ***confusus*** Blandford. Add:
FIGURES: Atkinson 1993b:612,614.
REFERENCES: **(cn)** Maes 1992:13. **(tx)** Atkinson 1993b.

Page 991 ***conscriptus*** Bright. Add:
REFERENCES: **(ds)** Atkinson et al. 1986:37. **(hb)** Atkinson et al. 1986:37.

Page 991 ***consimilis*** LeConte. Add:
FIGURES: Atkinson 1993b:613,614.

REFERENCES: (**ds**) Laplante et al. 1991:116; Larochelle 1979:51. (**hb**) Weber & McPherson 1991. (**tx**) Atkinson 1993b.

Page 991 ***conspectus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:255. (**tx**) Wood, Stevens, & Lezama 1992:255.

Page 992 ***corticalis*** Eichhoff. Add:
HOSTS: *Lobelia excelsa.*
REFERENCES: (**ds**) Barriga et al. 1993:73

Page 992. ***costatus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:254. (**tx**) Wood, Stevens, & Lezama 1992:254.

Page 992 ***costifera*** Bright. Add:
REFERENCES: (**ds**) Atkinson et al. 1986:70.

Page 992 ***cracentis*** Bright. Add:
REFERENCES: (**ds**) Atkinson et al. 1986:70.

Page 993 ***crinalis*** Blackman. Add:
HOSTS: *Toxicodendron radicans.*
REFERENCES: (**ds**) Atkinson & Peck 1994:327. (**hb**) Atkinson & Peck 1994:327; Weber & McPherson 1991.

Page 993 ***debilis*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:256. (**tx**) Wood, Stevens, & Lezama 1992:256.

Page 993 ***degener*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:255. (**tx**) Wood, Stevens, & Lezama 1992:255.

Page 994 ***dentifrons*** Blackman. Add:
REFERENCES: (**ds**) Laplante et al. 1991:116.

Page 996 ***diminutivus*** Bright. Add:
REFERENCES: (**ds**) Equihua-Martinez & Atkinson 1986:634. (**ec**) Equihua-Martinez & Atkinson 1986:634. (**hb**) Equihua-Martinez & Atkinson 1986:634.

Page 996 *brasiliensis* Schedl (synonym of ***dimorphus*** Schedl). Add:
REFERENCES: (**tx**) Marinoni et al. 1992:124.

Page 996 ***dissolutus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:254. (**tx**) Wood, Stevens, & Lezama 1992:254.

Page 998 ***exsculptus*** (Ratzeburg). Add:
FIGURES: Pfeffer 1994c:279 (habitus), 290,291 (frons, elytral declivity), 301 (gallery).
HOSTS: *Abies alba, Picea abies, Pinus sylvestris.*
REFERENCES: (**cn**) Chararas 1961b:70, 1961c:93. (**ds**) Burakowski et al. 1992:115; Chararas 1962c:363; Michalski & Ratajczak 1994; Pfeffer 1994c:175; Schedl 1981b:77. (**ec**) Michalski & Ratajczak 1994 (**hb**) Chararas 1961b:70, 1961c:93, 1962c:363; Koch 1992:

162. **(tx)** Burakowski et al. 1992:115; Pfeffer 1994a:169, 1994c:175; Schedl 1981b:77.

Page 999 ***galeritus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:256. **(tx)** Wood, Stevens, & Lezama 1992:256.

Page 1000 ***glabratulus*** (Schedl). Add:
HOSTS: *Pinus leucodermis, P. montezumae, P. oocarpa.*
REFERENCES: **(tx)** Pfeffer 1994a:170.

Page 1000 ***glabratus*** Eichhoff. Add:
FIGURES: Pfeffer 1994c:279 (elytral declivity), 290,291 (frons, elytral declivity).
DISTRIBUTION: EUROPE: Finland, Norway.
HOSTS: *Larix decidua, L. europaea, Pinus cembra, P. pumila.*
REFERENCES: **(ds)** Burakowski et al. 1992:116; Gogniat 1991:29; Nilssen 1993; Pfeffer 1994c:178; Schott 1986:57. **(hb)** Koch 1992:163. **(tx)** Burakowski et al. 1992:116; Pfeffer 1994a:169, 1994c:178.

Page 1001 ***henscheli*** Seitner. Add:
FIGURES: Pfeffer 1994c:290,291 (frons, elytral declivity).
DISTRIBUTION: EUROPE: Bulgaria, France, Switzerland, Ukraine.
HOSTS: *Pinus cembra, P. leucodermis, P. nigra, P. nigra austriaca.*
REFERENCES: **(ds)** Pfeffer 1994c:181. **(hb)** Koch 1992:163. **(tx)** Pfeffer 1994a:170, 1994c:181.

Page 1002 ***hylocuroides*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Veracruz**).
HOSTS: *Tithonia* sp.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:465. **(hb)** Noguera-Martinez & Atkinson 1990:465.

Page 1003 ***indefessus*** Bright. Add:
REFERENCES: **(ds)** Equihua-Martinez & Atkinson 1986:634. **(ec)** Equihua-Martinez & Atkinson 1986:634. **(hb)** Equihua-Martinez & Atkinson 1986:634.

Page 1003 ***inops*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:256. **(tx)** Wood, Stevens, & Lezama 1992:256.

Page 1004 ***insuetus*** Bright. Add:
REFERENCES: **(ds)** Atkinson & Equihua-Martinez 1988:98; Atkinson et al. 1986:38. **(hb)** Atkinson et al. 1986:38.

Page 1004 ***intextus*** Swaine. Add:
DISTRIBUTION: NORTH AMERICA: Canada (**Yukon Territory**).
REFERENCES: **(ds)** Laplante et al. 1991:116; Larochelle 1979:51.

Page 1004 ***jucundus*** Blandford. Add:
FIGURES: Nakane et al. 1963, pl. 191.
REFERENCES: **(ds)** Nakane et al. 1963:382. **(tx)** Nakane et al. 1963:382.

Page 1005 ***kirgisicus*** Pjatnitskii. Add:

DISTRIBUTION: ASIA: Kazakhstan, Kyrgyzstan (delete "EUROPE: W USSR").
REFERENCES: (**ds**) Pfeffer 1994c:177. (**tx**) Pfeffer 1994c:177.

Page 1005 ***knoteki*** Reitter. Add:

FIGURES: Pfeffer 1994c:279 (elytral apex), 290,291 (frons, elytral declivity).
HOSTS: *Pinus cembra, P. mugo uncinata, P. rotundata.*
REFERENCES: (**bv**) Baltensweiler 1975. (**ds**) Pfeffer 1994c:177. (**hb**) Koch 1992:163. (**tx**) Pfeffer 1994a:170, 1994c:177.

Page 1005 ***laetus*** Wood. Add:

REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:255. (**tx**) Wood, Stevens, & Lezama 1992:255.

Page 1006 ***lapponicus*** Stark. Add:

REFERENCES: **ds**) Pfeffer 1994c:179. (**tx**) Pfeffer 1994c:179.

Page 1006 ***lautus*** Eichhoff. Add:

FIGURES: Atkinson 1993b:610.
HOSTS: *Sassafras albidum, Toxicodendron radicans, Ulmus rubra.*
REFERENCES: (**ds**) Atkinson & Peck 1994:327; Laplante et al. 1991:116. (**hb**) Atkinson & Peck 1994:327. (**tx**) Atkinson 1993b.

Page 1007 ***lenis*** Wood. Add:

REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:255. (**tx**) Wood, Stevens, & Lezama 1992:255.

Page 1007 ***lichtensteini*** (Ratzeburg). Add:

FIGURES: Pfeffer 1994c:279 (elytral apex), 290,291 (frons, elytral declivity).
DISTRIBUTION: EUROPE: United Kingdom (England, Scotland).
HOSTS: *Abies pectinata, Larix decidua, L. europaea, Picea excelsa, Pinus mugo, P. nigra, P. nigra pallasiana, P. pinaster, P. sibirica, P. strobus.*
REFERENCES: (**bv**) Rauhut, Schmidt, & Schmidt 1993. (**cn**) Hyman 1992:401. (**ds**) Allen 1990; Balazy & Michalski 1962a:204; Burakowski et al. 1992:116; Hansen et al. 1991a:20, 1993:111; Hyman 1992:401; Koponen & Nuorteva 1973:26; Lyszkowski 1993; Michalski & Ratajczak 1994; Nilssen 1993; Owen 1994a; Pfeffer 1994c:177; Titovsek 1983:406. (**ec**) Hyman 1992:401; Michalski & Ratajczak 1994; Nilssen 1993; Trojan et al. 1994:91. (**hb**) Balazy & Michalski 1962a:203; Koch 1992:163. (**ms**) Hansen et al. 1993:111. (**tx**) Burakowski et al. 1992:116; Owen 1994a; Pfeffer 1994a:170, 1994c:177.

Page 1009 ***mandibularis*** Schedl. Add:

REFERENCES: (**tx**) Marinoni et al. 1992:125.

Page 1009 ***mauretanicus*** Peyerimhoff. Add:

FIGURES: Pfeffer 1994c:279 (elytral declivity).
REFERENCES: (**ds**) Pfeffer 1994c:178. (**tx**) Pfeffer 1994c:178.

Page 1009 ***medialis*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:255. **(tx)** Wood, Stevens, & Lezama 1992:255.

Page 1009 ***mendosus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:255. **(tx)** Wood, Stevens, & Lezama 1992:255.

Page 1010 ***micrographus*** (Linnaeus). Add:
FIGURES: Pfeffer 1994c:290,291 (frons, elytral declivity).
DISTRIBUTION: ASIA: E. Russia (Siberia).
HOSTS: *Abies sibirica.*
NOTES: Pfeffer 1994c:176 (recognizes two subspecies, *micrographus* and *sibiricus*).
REFERENCES: **(ds)** Balazy & Michalski 1962a:203; Burakowski et al. 1992:117; Koponen & Nuorteva 1973:26; Michalski & Ratajczak 1994. **(ec)** Michalski & Ratajczak 1994. **(hb)** Balazy & Michalski 1962a:203; Koch 1992:162. **(tx)** Burakowski et al. 1992:117; Pfeffer 1994a:169.

Page 1012 *micrographus sibiricus* Stark (synonym of ***micrographus*** (Linnaeus)). Add:
NOTES: Pfeffer 1994c:177 (treated as a subspecies).
REFERENCES: **(ds)** Pfeffer 1994c:177. **(tx)** Pfeffer 1994c:177.

Page 1012 ***miniatus*** Bright. Add:
REFERENCES: **(cn)** Maes 1992:13.

Page 1013 ***morosovi*** Spessivtsev. Add:
FIGURES: Pfeffer 1994c:279 (habitus).
DISTRIBUTION: EUROPE: Austria. ASIA: Russia (Siberia).
HOSTS: *Abies concolor, Picea abies.*
REFERENCES: **(ds)** Burakowski et al. 1992:118; Pfeffer 1994c:181. **(hb)** Koch 1992:163. **(tx)** Burakowski et al. 1992:118; Pfeffer 1994a:170, 1994c:181.

Page 1013 ***murrayanae*** Blackman. Add:
REFERENCES: **(ec)** Jacobi 1993.

Page 1015 ***nitidulus*** (Mannerheim). Add:
REFERENCES: **(ec)** Storer & Dallara 1992; Storer et al. 1994.

Page 1016 ***nitidus*** Swaine. Add:
REFERENCES: **(ds)** Laplante et al. 1991:116; Larochelle 1979:51.

Page 1017 ***opaculus*** LeConte. Add:
REFERENCES: **(ds)** Dearborn & Donahue 1993:80; Laplante et al. 1991:116; Larochelle 1979:51.

Page 1018 ***orarius*** Bright. Add:
DISTRIBUTION: NORTH AMERICA: United States: (California).
REFERENCES: **(bv)** Rappaport & Wood 1988a, 1988b, 1994. **(ds)** Rappaport & Wood 1988a, 1988b.

Page 1018 ***ostryacolens*** Bright. Add:
REFERENCES: **(ds)** Atkinson et al. 1986:39. **(hb)** Atkinson et al. 1986:39.

Page 1018 ***parfentievi*** Pjatnitskii. Add:

DISTRIBUTION: ASIA: Kazakhstan, Kyrgyzstan (delete "EUROPE: W USSR").

REFERENCES: **(ds)** Pfeffer 1994c:175. **(ec)** Kostin 1964:111. **(hb)** Kostin 1960:133. **(tx)** Michalski 1969b:569; Pfeffer 1994c:175.

Page 1019 ***paulus*** Wood. Add:

REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:465. **(hb)** Noguera-Martinez & Atkinson 1990:465.

Page 1019 ***perexiguus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:256. **(tx)** Wood, Stevens, & Lezama 1992:256.

Page 1019 ***pinavorus*** Bright. Add:

REFERENCES: **(ds)** Deyrup & Atkinson 1987a:66. **(hb)** Deyrup & Atkinson 1987a:66; Haack, Billings, & Richter 1990.

Page 1019 ***pinguis*** (Blackman). Add:

REFERENCES: **(ds)** Lopez-Colon 1991.

Page 1019 ***pini*** Kurenzov. Add:

REFERENCES: **(ds)** Pfeffer 1994c:177. **(tx)** Pfeffer 1994c:177.

Page 1020 ***pinsapo*** Pfeffer. Add:

FIGURES: Pfeffer 1994c:280 (adult features).

REFERENCES: **(ds)** Lopez-Colon 1991; Pfeffer 1994c:180. **(tx)** Pfeffer 1994c:180.

Page 1020 ***pityographus*** (Ratzeburg). Add:

FIGURES: Pfeffer 1994c:279 (habitus, elytral declivity), 290, 291 (frons, elytral declivity), 301 (gallery).

DISTRIBUTION: EUROPE: Switzerland.

HOSTS: *Abies nordmanniana, Larix decidua, L. europaea, Picea abies, Pinus cembra, P. mugo, P. rotundata, P. strobus, P. sylvestris, Pseudotsuga menziesii, Tsuga canadensis.*

NOTES: Pfeffer 1994c:176 (recognizes two subspecies, *pityographus* and *cribratus*).

REFERENCES: **(an)** Francke et al. 1989. **(bv)** Archelas & Furstoss 1992; Francke et al. 1989; Rauhut, Schmidt, & Schmidt 1993. **(cn)** Zach 1991. **(ds)** Burakowski et al. 1992:118; Gogniat 1991:29; Kinsky & Zumr 1988; Michalski & Ratajczak 1994; Pfeffer 1994c:176; Schott 1986:57; Titovsek 1983:405. **(ec)** Hilt & Ammer 1994; Kinsky & Zumr 1988; Michalski & Ratajczak 1994; Michalski, Kaczmarek, & Ratajczak 1992b:145; Starzyk 1977; Tenkacova & Mituch 1988; Trojan et al. 1994:91; Zabecki 1988. **(hb)** Koch 1992:162. **(ms)** Archelas & Furstoss 1992; Skirkevicius 1993:61. **(tx)** Burakowski et al. 1992:118; Pfeffer 1994a:169, 1994c:176.

Page 1021 *pityographus cribratus* Pfeffer (synonym of ***pityographus*** (Ratzeburg)). Add:

NOTES: Pfeffer 1994c:176 (treated as a subspecies).

REFERENCES: **(ds)** Pfeffer 1994c:176. **(hb)** Koch 1992:162. **(tx)** Pfeffer 1994c:176.

Page 1021 ***puberulus*** (LeConte). Add:

DISTRIBUTION: NORTH AMERICA: United States: **(Iowa)**.

REFERENCES: **(cn)** Robertson 1990. **(ds)** Dearborn & Donahue 1993:80; Laplante et al. 1991:116; Larochelle 1979:51; Schwert 1992:81,84. **(hb)** Robertson 1990; Weber & McPherson 1991.

Page 1022 ***pubescens*** (Marsham). Add:

FIGURES: Lombardero 1994:386, Plate 9 (adult, aedeagus, gallery); Pfeffer 1994c:279 (elytral declivity), 280 (elytral declivity), 290, 291 (frons, elytral declivity)
DISTRIBUTION: EUROPE: Ireland, Poland, Scotland, Slovenia, Spain.
HOSTS: *Pinus nigra austriaca, P. nigra cevennensis.*
REFERENCES: **(ds)** Burakowski et al. 1992:120; Hansen et al. 1994:88; Lombardero 1994:383; Lyszkowski 1993; Morris 1993:296; Nilssen 1993; O'Conner, Winter, & Good 1991:404, 407; Pfeffer 1994c:180; Schott 1986:57. **(hb)** Koch 1992:162. **(tx)** Burakowski et al. 1992:120; Lombardero 1994:383; Pfeffer 1994a:170, 1994c:180.

Page 1023 ***pulchellus*** Eichhoff. Add:

REFERENCES: **(ds)** Laplante et al. 1991:116; Larochelle 1979:51. **(hb)** Weber & McPherson 1991.

Page 1024 ***pulicarius*** (Zimmermann). Add:

FIGURES: Atkinson 1993b:611.
DISTRIBUTION: NORTH AMERICA: **Bahamas**.
REFERENCES: **(ds)** Atkinson & Peck 1994:328; Laplante et al. 1991:116; Larochelle 1979:51. **(hb)** Atkinson & Peck 1994:328; Weber & McPherson 1991. **(tx)** Atkinson 1993b.

Page 1024 ***pullus*** (Zimmermann). Add:

FIGURES: Atkinson 1993b:613,614.
REFERENCES: **(hb)** Weber & McPherson 1991. **(tx)** Atkinson 1993b.

Page 1025 ***ramiperda*** Swaine. Add:

REFERENCES: **(ds)** Dearborn & Donahue 1993:80; Laplante et al. 1991:116; Larochelle 1979:51. **(ec)** Dearborn & Donahue 1993:80.

Page 1026 ***rossicus*** Eggers. Add:

NOTES: Pfeffer 1994c:181 (quotes original description).
REFERENCES: **(tx)** Pfeffer 1994c:181.

Page 1026 ***scalptor*** Blackman. Add:

REFERENCES: **(ds)** Furniss et al. 1992:375. **(hb)** Furniss et al. 1992:375.

Page 1027 ***scitulus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:255. **(tx)** Wood, Stevens, & Lezama 1992:255.

Page 1028 ***setosus*** Blackman. Add:

REFERENCES: (ec) Storer & Dallara 1992; Storer et al. 1994.

Page 1028 ***sobrinus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:256. **(tx)** Wood, Stevens, & Lezama 1992:256.

Page 1029 ***sparsepilosus*** (Schedl). Add:

REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:256. (**tx**) Wood, Stevens, & Lezama 1992:256.

Page 1029 ***strictus*** Wood. Add:

REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:256. (**tx**) Wood, Stevens, & Lezama 1992:256.

Page 1030 ***subcribratus*** Schedl. Add:

NOTES: Wood, Stevens, & Lezama 1992:256 (cited in **Gnatholeptus**).

REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:256. (**tx**) Wood, Stevens, & Lezama 1992:256.

Page 1031 ***timidulus*** Wood. Add:

REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:255. (**tx**) Wood, Stevens, & Lezama 1992:255.

Page 1031 ***tragardhi*** Spessivtsev. Add:

DISTRIBUTION: EUROPE: Austria.

REFERENCES: (**ds**) Balazy & Michalski 1962a:204; Burakowski et al. 1992:120; Michalski & Ratajczak 1994; Pfeffer 1994c:178. (**ec**) Michalski & Ratajczak 1994. (**hb**) Balazy & Michalski 1962a:204. (**tx**) Burakowski et al. 1992:120; Pfeffer 1994c:178.

Page 1032 ***trunculus*** Bright. Add:

REFERENCES: (**ds**) Equihua-Martinez & Atkinson 1986:634. (**ec**) Equihua-Martinez & Atkinson 1986:634. (**hb**) Equihua-Martinez & Atkinson 1986:634.

Page 1032 ***tuberculatus*** Eichhoff. Add:

REFERENCES: (**ec**) Storer et al. 1994; Storer & Dallara 1992.

Page 1032 ***tutulus*** Bright. Add:

REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:465. (**hb**) Noguera-Martinez & Atkinson 1990:465.

Page 1033 ***vesculus*** Wood. Add:

REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:256. (**tx**) Wood, Stevens, & Lezama 1992:256.

Add species: ****antiquarius*** Bright & Poinar 1994:190. Holotype (♂); Dominican Republic amber; GOPC, Corvallis.

FIGURES: Bright & Poinar 1994:191.

DISTRIBUTION: NORTH AMERICA: Dominican Republic.

REFERENCES: (**tx**) Bright & Poinar 1994.

****aphelofacies*** Bright & Poinar 1994:190. Holotype (♂); Dominican Republic amber; GOPC, Corvallis.

FIGURES: Bright & Poinar 1994:191.

DISTRIBUTION: NORTH AMERICA: Dominican Republic.

REFERENCES: (**tx**) Bright & Poinar 1994.

pecki Atkinson 1993b:613. Holotype (♂); Florida: Munroe Co.: Big Pine Key; USNM.

FIGURES: Atkinson 1993b:609.

DISTRIBUTION: NORTH AMERICA: United States (Florida).

REFERENCES: **(ds)** Atkinson & Peck 1994:328. **(hb)** Atkinson & Peck 1994:328. **(tx)** Atkinson 1993b.

temporarius Bright & Poinar 1994:190. Holotype (♂); Dominican Republic amber; GOPC, Corvallis.

FIGURES: Bright & Poinar 1994:191.

DISTRIBUTION: NORTH AMERICA: Dominican Republic.

REFERENCES: **(tx)** Bright & Poinar 1994.

Corthylini: Corthylina.

Page 1034 **Corthylina.** Add:

REFERENCES: Pfeffer 1994c:172.

Genus **Gnathotrichus** Eichhoff

Page 1034 ***consentaneus*** Blandford. Add:

REFERENCES: **(ds)** Atkinson & Equihua-Martinez 1988:90; Wood 1982b:1165. **(tx)** Wood 1982b:1165.

Page 1035 ***materiarius*** (Fitch). Add:

DISTRIBUTION: EUROPE: Sweden, Switzerland.

HOSTS: *Pinus sylvestris, Pseudotsuga menziesii.*

REFERENCES: **(bv)** Rauhut, Schmidt, & Schmidt 1993. **(cn)** Luitjes 1977; Robertson 1990. **(ds)** Dearborn & Donahue 1993:80; Gillerfors 1988:43,45; Hirschheydt 1992; Laplante et al. 1991:117; Larochelle 1979:51; Pfeffer 1994c:172; Schott 1986:57. **(hb)** Carrano-Moreira, Berisford, & Dalusky 1993; Koch 1992:163; Robertson 1990; Weber & McPherson 1991. **(tx)** Pfeffer 1994a:170, 1994c:172.

Page 1036 ***obscurus*** Wood. Add:

DISTRIBUTION: NORTH AMERICA: Mexico (**Veracruz**).

REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:465.

Page 1036 ***omissus*** Wood. Add:

DISTRIBUTION: NORTH AMERICA: **Panama**.

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1991a:137. **(tx)** Wood, Stevens, & Lezama 1991a:137.

Page 1036 ***perniciosus*** Wood. Add:

DISTRIBUTION: NORTH AMERICA: Mexico (**Oaxaca**).

REFERENCES: **(cn)** Maes 1992:13.

Page 1037 ***retusus*** (LeConte). Add:

REFERENCES: **(bv)** Kelsey 1994a, 1994b; Liu & Mclean 1993. **(ds)** Parsons et al. 1991:58. **(ec)** Liu & McLean 1993. **(hb)** Liu & McLean 1993. **(ms)** Kaminska et al. 1991; Skirkevicius 1993:59; Sugai & Ohto 1990.

Page 1038 ***sulcatus*** (LeConte). Add:

FIGURES: Anonymous 1990b:6 (adult).

REFERENCES: **(bv)** Liu & McLean 1993. **(cn)** Anonymous 1990b:6; Kaminska et al. 1991; Lindgren 1990; Lindgren & Fraser 1994; McLean & Salom 1989; Orbay et al. 1994; Sugai & Ohto 1990. **(ds)** Parsons et al. 1991:58; Winter 1991a. **(ec)** Liu & McLean 1993. **(hb)** Lam & McLean 1992; Lindgren 1990; Liu & McLean

1993; McLean & Salom 1989. **(ms)** Anonymous 1990b:6; Kaminska et al. 1991; Skirkevicius 1993:59; Sugai & Ohto 1990.

Add species: ***fossor*** Bright & Poinar 1994:188. Holotype (sex?); Dominican Republic amber; GOPC, Corvallis.

FIGURES: Bright & Poinar 1994.

DISTRIBUTION: NORTH AMERICA: Dominican Republic.

REFERENCES: **(tx)** Bright & Poinar 1994.

Genus **Gnathotrupes** Schedl

Page 1039 **Gnathotrupes** Schedl. Add:

Eidognathus Schedl 1980c:160. Type-species: *Eidognathus sericeus* Schedl, monotypic. **NEW SYNONYMY.**

NOTES: Omitted from 1992 catalog. Wood 1984b:225 suggested that this genus, while still a manuscript name, was a synonym.

REFERENCES: **(ds)** Hoganson & Ashworth 1992:108. **(tx)** Schedl 1980c:160; Wood 1984b:225.

Gnathostactus Schedl 1980c:161. Type-species: *Gnathotrupes velatus* Schedl 1975d:10, original designation. **NEW SYNONYMY**.

NOTES: Omitted from 1992 catalog. Wood 1984b:225 suggested that this genus, while still a manuscript name, was a synonym.

REFERENCES: **(tx)** Schedl 1980c:161; Wood 1984b:225.

Gnathoxylenus Schedl 1980c:162. Type-species: *Gnathotrichus fimbriatus* Schedl 1955e:259, original designation. **NEW SYNONYMY**.

NOTES: Omitted from 1992 catalog. Wood 1984b:225 suggested that this genus, while still a manuscript name, was a synonym.

REFERENCES: **(tx)** Schedl 1980c:162; Wood 1984b:225.

Page 1039 ***bituberculatus*** (Blandford). Add:

DISTRIBUTION: SOUTH AMERICA: **Brazil, Colombia**.

REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:466.

Page 1040 ***cirratus*** Schedl. Add:

DISTRIBUTION: SOUTH AMERICA: Chile.

REFERENCES: **(an)** Naumann-Etienne 1978b. **(ds)** Naumann-Etienne 1978b; Schedl 1980c:159. **(hb)** Naumann-Etienne 1978b. **(tx)** Naumann-Etienne 1978b.

Page 1040 ***crecentus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:257. **(tx)** Wood, Stevens, & Lezama 1992:257.

Page 1040 ***dilutus*** (Wood). Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:257. **(tx)** Wood, Stevens, & Lezama 1992:257.

Page 1040 ***electus*** (Wood). Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:257. **(tx)** Wood, Stevens, & Lezama 1992:257.

Page 1040 ***fimbriatus*** (Schedl). Add *frontalis* (Schedl) as a synonym. Add:

HOSTS: *Aextoxicon punctatum, Laurelia philippiana* (ex. Lanfranco 1995, personal communication).

Page 1040 *frontalis* (Schedl). Move to ***fimbriatus*** (Schedl) as a synonym. Holotypes examined (DEB). **NEW SYNONYMY.** Add:

NOTES: ***frontalis*** is the male of ***fimbriatus*** (both holotypes and additional specimens examined).

Page 1040 *impressus* (Schedl). Move to ***pauciconcavus*** Schedl as a synonym. Add:

SYNONYMY: Schedl 1980c:162.

Page 1041 *sextuberculatus* Schedl (synonym of ***longipennis*** (Blanchard)). Add:

REFERENCES: **(ds)** Hoganson & Ashworth 1992:108.

Page 1041 *ciliatus* Schedl (synonym of ***longiusculus*** (Schedl)). Add:

REFERENCES: **(an)** Naumann-Etienne 1978b. **(ds)** Naumann-Etienne 1978b. **(hb)** Naumann-Etienne 1978b. **(tx)** Naumann-Etienne 1978b.

Page 1042 ***nothofagi*** (Schedl). Add:

REFERENCES: **(an)** Naumann-Etienne 1978b. **(ds)** Naumann-Etienne 1978b. **(hb)** Naumann-Etienne 1978b.

Page 1042 ***pauciconcavus*** Schedl. Add *impressus* Schedl as a synonym. Add:

NOTES: Schedl 1980c:162 (corrected original erroneous spelling of this name).

REFERENCES: **(tx)** Schedl 1980c:162.

Page 1042 ***terebratus*** (Wood). Add:

HOSTS: "guarumo".

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:257. **(tx)** Wood, Stevens, & Lezama 1992:257.

Add species: ***sericeus*** (Schedl) 1980c:160 (*Eidognathus*). Holotype (♀); Valdivia (Chile); NHMW.

DISTRIBUTION: SOUTH AMERICA: Chile.

HOSTS: *Nothofagus dombeyi*.

NOTES: Omitted from 1992 catalog.

REFERENCES: **(tx)** Schedl 1980c:160.

Genus **Tricolus** Blandford

Page 1042 **Tricolus** Blandford. Add:

REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Page 1042 ***ardis*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:258. **(tx)** Wood, Stevens, & Lezama 1992:258.

Page 1043 ***badius*** Wood. Add:

DISTRIBUTION: NORTH AMERICA: Mexico (**Chiapas**).

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:259. **(tx)** Wood, Stevens, & Lezama 1992:259.

Page 1043 ***bifidus*** Schedl. Add:

REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Page 1043 ***capitalis*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:259. **(tx)** Wood, Stevens, & Lezama 1992:259.

Page 1043 ***cecropii*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:258. **(tx)** Wood, Stevens, & Lezama 1992:258.

Page 1043 ***difodinus*** Bright. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Guerrero).
HOSTS: *Miconia trinerva.*

Page 1043 ***fenoris*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:259. **(tx)** Wood, Stevens, & Lezama 1992:259.

Page 1043 ***gracilipennis*** Schedl. Add:
REFERENCES: **(tx)** Marinoni et al. 1992:125.

Page 1043 ***inaffectus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:258. **(tx)** Wood, Stevens, & Lezama 1992:258.

Page 1043 ***inornatus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Guerrero**).
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:258. **(tx)** Wood, Stevens, & Lezama 1992:258.

Page 1044 ***naevus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:259. **(tx)** Wood, Stevens, & Lezama 1992:259.

Page 1044 ***nodifer*** Blandford. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Chiapas**).
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:466; Wood, Stevens, & Lezama 1992:259. **(hb)** Noguera-Martinez & Atkinson 1990:466. **(tx)** Wood, Stevens, & Lezama 1992:259.

Page 1044 ***ovicollis*** Blandford. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Oaxaca, Veracruz**).
HOSTS: *Miconia glaberrima.*
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:466; Wood, Stevens, & Lezama 1992:259. **(tx)** Wood, Stevens, & Lezama 1992:259.

Page 1044 ***parsus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:258. **(tx)** Wood, Stevens, & Lezama 1992:258.

Page 1044 ***partilis*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:259. **(tx)** Wood, Stevens, & Lezama 1992:259.

Page 1044 ***peltatus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:260. **(tx)** Wood, Stevens, & Lezama 1992:260.

Page 1044 ***plaumanni*** Schedl. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:260. **(tx)** Marinoni et al. 1992:126; Wood, Stevens, & Lezama 1992:260.

Page 1045 ***rufithorax*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:259. (**tx**) Wood, Stevens, & Lezama 1992:259.

Page 1045 ***saundersi*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:259. (**tx**) Wood, Stevens, & Lezama 1992:259.

Page 1045 ***scitulus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:259. (**tx**) Wood, Stevens, & Lezama 1992:259.

Page 1045 ***senex*** Schedl. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Veracruz**).
HOSTS: *Miconia glaberrima.*
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:466; Wood, Stevens, & Lezama 1992:260. (**tx**) Marinoni et al. 1992:126; Wood, Stevens, & Lezama 1992:260.

Page 1045 ***simplicis*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:258. (**tx**) Wood, Stevens, & Lezama 1992:258.

Page 1045 ***spheniscus*** Schedl. Add:
REFERENCES: (**tx**) Marinoni et al. 1992:126.

Page 1045 ***subincisuralis*** Schedl. Add:
REFERENCES: (**ec**) Carrano-Moreira & Pedrosa-Macedo 1994.

Genus **Amphicranus** Erichson

Page 1045 **Amphicranus** Erichson. Add:
REFERENCES: (**ds**) Hoganson & Ashworth 1992:108.

Page 1045 ***argutus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:260. (**tx**) Wood, Stevens, & Lezama 1992:260.

Page 1046 ***belti*** Blandford. Add:
DISTRIBUTION: NORTH AMERICA: **Panama**.
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:260. (**tx**) Wood, Stevens, & Lezama 1992:260.

Page 1046 ***brevipennis*** Blandford. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Chiapas, Veracruz**).
HOSTS: *Inga* sp.
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:465; Wood, Stevens, & Lezama 1992:258. (**tx**) Wood, Stevens, & Lezama 1992:258.

Page 1046 ***callosus*** (Schedl). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:261. (**tx**) Wood, Stevens, & Lezama 1992:261.

Page 1046 ***collaris*** Blandford. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:260. **(tx)** Wood, Stevens, & Lezama 1992:260.

Page 1047 ***elegans*** Eichhoff. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:260. **(tx)** Wood, Stevens, & Lezama 1992:260.

Page 1047 ***fastigiatus*** Blandford. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:263. **(tx)** Wood, Stevens, & Lezama 1992:263.

Page 1047 ***filliformis*** Blandford. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Veracruz).
HOSTS: *Quercus laurina*.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:465. **(hb)** Noguera-Martinez & Atkinson 1990:465.

Page 1047 ***macellus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:263. **(tx)** Wood, Stevens, & Lezama 1992:263.

Page 1047 ***melanura*** (Blandford). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:261. **(tx)** Wood, Stevens, & Lezama 1992:261.

Page 1048 ***micans*** Wood. Add:
HOSTS: *Dialium guianense*, *Machaerium cirrhiferum*, *Protium* sp. copal.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:261. **(tx)** Wood, Stevens, & Lezama 1992:261.

Page 1048 ***mirandus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:262. **(tx)** Wood, Stevens, & Lezama 1992:262.

Page 1048 ***mucronatus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:263. **(tx)** Wood, Stevens, & Lezama 1992:263.

Page 1048 ***propugnatus*** Blandford. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:263. **(tx)** Wood, Stevens, & Lezama 1992:263.

Page 1048 ***rasilis*** Schedl. Add:
REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994. **(tx)** Marinoni et al. 1992:122.

Page 1049 ***speciosus*** (Schedl). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:262. **(tx)** Wood, Stevens, & Lezama 1992:262.

Page 1049 ***spectabilis*** (Wood). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:262. **(tx)** Wood, Stevens, & Lezama 1992:262.

Page 1049 ***spinescens*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:263. **(tx)** Wood, Stevens, & Lezama 1992:263.

Page 1049 ***spinosus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:263. **(tx)** Wood, Stevens, & Lezama 1992:263.

Page 1049 ***stenodermus*** (Schedl). Add:
HOSTS: *Leucaenia pulverulenta, Quercus* sp.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:465.

Page 1049 ***tenuis*** Blandford. Add;
DISTRIBUTION: SOUTH AMERICA: **Colombia**.

Page 1049 ***terebella*** Blandford. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:262. **(tx)** Wood, Stevens, & Lezama 1992:262.

Page 1049 ***thoracicus*** Erichson. Add:
DISTRIBUTION: SOUTH AMERICA: **Colombia**.

Page 1049 ***tornatilis*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:262. **(tx)** Wood, Stevens, & Lezama 1992:262.

Page 1050 ***truncatorus*** Schedl. Add:
REFERENCES: **(tx)** Marinoni et al. 1992:122.

Page 1050 ***ursus*** Schedl. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:262. **(tx)** Wood, Stevens, & Lezama 1992:262.

Page 1050 ***vagabundus*** (Schedl). Add:
DISTRIBUTION: SOUTH AMERICA: **Ecuador**.

Genus **Monarthrum** Kirsch

Page 1050 **Monarthrum** Kirsch. Add:
REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Page 1051 ***bicallosum*** (Schedl). Add:
REFERENCES: **(tx)** Marinoni et al. 1992:125.

Page 1051 ***bicolor*** (Ferrari). Add:
DISTRIBUTION: SOUTH AMERICA: **Colombia**.

Page 1051 ***bidens*** (Blandford). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:268. **(tx)** Wood, Stevens, & Lezama 1992:268.

Page 1051 ***bidentatum*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Chiapas**).
HOSTS: *Siparuna nicaraguensis*.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:268. **(tx)** Wood, Stevens, & Lezama 1992:268.

Page 1051 ***bifoveatum*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:265. **(tx)** Wood, Stevens, & Lezama 1992:265.

Page 1052 ***bispinum*** (Blandford). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:264. **(tx)** Wood, Stevens, & Lezama 1992:264.

Page 1052 ***brasiliensis*** (Schedl). Add:
HOSTS: *Araucaria angustifolia.*
REFERENCES: **(ds)** Schönherr & Pedrosa-Macedo 1981:53. **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Page 1052 ***carinatum*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:267. **(tx)** Wood, Stevens, & Lezama 1992:267.

Page 1052 ***carinulum*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:268. **(tx)** Wood, Stevens, & Lezama 1992:268.

Page 1052 ***consimile*** (Blandford). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:264. **(tx)** Wood, Stevens, & Lezama 1992:264.

Page 1053 ***conversum*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Michoacán**).

Page 1053 ***corculum*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:269. **(tx)** Wood, Stevens, & Lezama 1992:269.

Page 1053 ***cordatum*** (Blandford). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:264. **(tx)** Wood, Stevens, & Lezama 1992:264.

Page 1053 ***cordicticum*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico **(Veracruz)**.
HOSTS: *Quercus laurina.*
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:466.

Page 1053 ***cristatum*** (Ferrari). Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.
REFERENCES: **(ds)** Schedl 1976a:56.

Page 1053 ***dentigerum*** (LeConte). Add:
REFERENCES: **(ds)** Furniss et al. 1992:375. **(hb)** Furniss et al. 1992:375.

Page 1054 ***desum*** (Wood). Add:
DISTRIBUTION: NORTH AMERICA: Mexico **(Guerrero)**.

Page 1054 ***difficile*** (Blandford). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:267. **(tx)** Wood, Stevens, & Lezama 1992:267.

Page 1054 ***dimidiatum*** (Ferrari). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Oaxaca, Veracruz**).
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:265. **(tx)** Wood, Stevens, & Lezama 1992:265.

Page 1054 ***egenum*** (Blandford). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Puebla, Veracruz).
HOSTS: *Inga* sp.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:466; Wood, Stevens, & Lezama 1992:265. **(hb)** Noguera-Martinez & Atkinson 1990:466. **(tx)** Wood, Stevens, & Lezama 1992:265.

Page 1054 *bisetosus* Schedl (synonym of ***egenum*** (Blandford)). Add:
REFERENCES: **(tx)** Marinoni et al. 1992:122.

Page 1055 ***exornatum*** (Schedl). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Chiapas, Oaxaca**).
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:267. **(tx)** Wood, Stevens, & Lezama 1992:267.

Page 1055 ***fasciatum*** (Say). Add:
DISTRIBUTION: NORTH AMERICA: Canada (Ontario).
HOSTS: *Vitis* sp.
REFERENCES: **(cn)** Pfeffer et al. 1990. **(ds)** Laplante et al. 1991:117. **(hb)** Weber & McPherson 1991.

Page 1056 ***fastigiorum*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:268. **(tx)** Wood, Stevens, & Lezama 1992:268.

Page 1056 ***ferrarii*** (Blandford). Add:
REFERENCES: **(ds)** Bright 1972a:1385; Wood, Stevens, & Lezama 1992:266. **(tx)** Wood, Stevens, & Lezama 1992:266.

Page 1056 ***fimbriaticorne*** (Blandford). Add:
DISTRIBUTION: SOUTH AMERICA: **Trinidad**.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:266. **(tx)** Wood, Stevens, & Lezama 1992:266.

Page 1056 ***flohri*** (Schedl). Add:
REFERENCES: **(ds)** Equihua-Martinez 1992:63.

Page 1056 ***gracilior*** (Schedl). Add:
REFERENCES: **(tx)** Marinoni et al. 1992:125.

Page 1057 ***infradentatum*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:269. **(tx)** Wood, Stevens, & Lezama 1992:269.

Page 1057 ***ingens*** (Eichhoff). Add:
DISTRIBUTION: SOUTH AMERICA: **Ecuador**.

Page 1057 ***insignatum*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:267. **(tx)** Wood, Stevens, & Lezama 1992:267.

Page 1057 ***laterale*** (Eichhoff). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Oaxaca**).
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:466; Wood, Stevens, & Lezama 1992:266. **(tx)** Wood, Stevens, & Lezama 1992:266.

Page 1058 ***limulum*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:268. **(tx)** Wood, Stevens, & Lezama 1992:268.

Page 1058 ***lobatum*** (Ferrari). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Veracruz**). SOUTH AMERICA: **Peru**.
HOSTS: *Leucaenia pulverulenta*.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:466; Wood, Stevens, & Lezama 1992:266. **(tx)** Wood, Stevens, & Lezama 1992:266.

Page 1058 ***luctuosum*** (Blandford). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Veracruz**).
HOSTS: *Leucaenia pulverulenta*.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:466.

Page 1058 ***mali*** (Fitch). Add:
DISTRIBUTION: NORTH AMERICA: Canada (New Brunswick, Ontario, Quebec).
REFERENCES: **(ds)** Atkinson & Peck 1994:327; Dearborn & Donahue 1993:80; Laplante et al. 1991:117; Larochelle 1979:51; Papp 1984:294. **(hb)** Atkinson & Peck 1994:327; Papp 1984:294; Weber & McPherson 1991.

Page 1059 ***minutissimum*** (Schedl). Add:
REFERENCES: **(tx)** Marinoni et al. 1992:125.

Page 1059 ***minutum*** (Schedl). Add:
REFERENCES: **(tx)** Marinoni et al. 1992:125.

Page 1059 ***morsum*** Wood. Add:
HOSTS: *Quercus laurina*.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:466; Wood, Stevens, & Lezama 1992:266. **(tx)** Wood, Stevens, & Lezama 1992:266.

Page 1059 ***nevermanni*** (Schedl). Add:
DISTRIBUTION: NORTH AMERICA: **Panama**.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:264. **(tx)** Wood, Stevens, & Lezama 1992:264.

Page 1059 ***notatum*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:268. **(tx)** Wood, Stevens, & Lezama 1992:268.

Page 1060 ***pennatum*** (Schedl). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Chiapas**, Nayarit).
HOSTS: *Ficus elastica, Leucaenia pulverulenta, Persea americana, Quercus laurina*.

REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:466; Wood, Stevens, & Lezama 1992:263. **(tx)** Wood, Stevens, & Lezama 1992:263.

Page 1060 ***plaumanni*** (Schedl). Add:

REFERENCES: **(tx)** Marinoni et al. 1992:125.

Page 1060 ***posticum*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:269. **(tx)** Wood, Stevens, & Lezama 1992:269.

Page 1061 ***proprium*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:265. **(tx)** Wood, Stevens, & Lezama 1992:265.

Page 1061 ***proximum*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:269. **(tx)** Wood, Stevens, & Lezama 1992:269.

Page 1061 ***pseudoscutellare*** (Schedl). Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:267. **(tx)** Wood, Stevens, & Lezama 1992:267.

Page 1061 ***punctifrons*** (Blandford). Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:267. **(tx)** Wood, Stevens, & Lezama 1992:267.

Page 1061 ***quercicolens*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:264. **(tx)** Wood, Stevens, & Lezama 1992:264.

Page 1061 ***quercivorum*** Schedl. Add:

REFERENCES: **(ds)** Wood 1982b:1218. **(tx)** Wood 1982b:1218.

Page 1061 ***quercum*** (Wood). Add:

REFERENCES: **(ds)** Wood 1982b:1217. **(hb)** Wood 1982b:1217. **(tx)** Wood 1982b:1217.

Page 1062 ***robustum*** (Schedl). Add:

FIGURES: Equihua-Martinez 1992:59 (habitus, frons, antenna).
DISTRIBUTION: NORTH AMERICA: Mexico (**Chiapas, Veracruz**).
HOSTS: *Leucaenia pulverulenta, Machaerium cirrhiferum.*
REFERENCES: **(ds)** Equihua-Martinez 1992:63; Noguera-Martinez & Atkinson 1990:466; Wood, Stevens, & Lezama 1992:264. **(tx)** Wood, Stevens, & Lezama 1992:264.

Page 1062 ***semipallens*** (Schedl). Add:

REFERENCES: **(tx)** Marinoni et al. 1992:125.

Page 1063 ***subductum*** (Schedl). Add:

DISTRIBUTION: SOUTH AMERICA: **Ecuador**.

Page 1063 ***sulcatum*** (Blandford). Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:264. **(tx)** Wood, Stevens, & Lezama 1992:264.

Page 1063 ***tetradontium*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Morelos, Veracruz**).
HOSTS: *Quercus* sp.
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:466.

Page 1063 ***umbrinum*** (Blandford). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Oaxaca**).

Page 1063 ***vallidum*** (Ferrari). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Puebla).
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:466; Wood, Stevens, & Lezama 1992:264. (**tx**) Wood, Stevens, & Lezama 1992:264.

Page 1064 ***vittatum*** (Blandford). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:268. (**tx**) Wood, Stevens, & Lezama 1992:268.

Page 1064 ***xalapensis*** Wood. Add:
HOSTS: *Quercus* sp.
REFERENCES: Noguera-Martinez & Atkinson 1990:466.

Genus **Glochinocerus** Blandford

Page 1064 ***gemellus*** Blandford. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Oaxaca**).

Genus **Metacorthylus** Blandford

Page 1064 ***concisus*** (Wood). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:269. (**tx**) Wood, Stevens, & Lezama 1992:269.

Page 1064 ***mutilis*** (Wood). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:269. (**tx**) Wood, Stevens, & Lezama 1992:269.

Page 1064 ***nigripennis*** Blandford. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:269. (**tx**) Wood, Stevens, & Lezama 1992:269.

Page 1065 ***velutinus*** (Wood). Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:269. (**tx**) Wood, Stevens, & Lezama 1992:269.

Genus **Microcorthylus** Ferrari

Page 1065 **Microcorthylus** Ferrari. Add:
REFERENCES: (**an**) Nobuchi 1969a:68.

Page 1065 ***concisus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:271. (**tx**) Wood, Stevens, & Lezama 1992:271.

Page 1065 ***demissus*** Wood. Add:

DISTRIBUTION: NORTH AMERICA: Mexico (**Chiapas, Oaxaca, Veracruz**).
HOSTS: *Vitis* sp.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:466; Wood, Stevens, & Lezama 1992:270. **(tx)** Wood, Stevens, & Lezama 1992:270.

Page 1066 ***grandiclavatus*** Eggers. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:271. **(tx)** Wood, Stevens, & Lezama 1992:271.

Page 1066 ***inermis*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:270. **(tx)** Wood, Stevens, & Lezama 1992:270.

Page 1066 ***lassus*** Wood. Add:

HOSTS: *Persea americana*.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:270. **(tx)** Wood, Stevens, & Lezama 1992:270.

Page 1066 ***minimus*** Schedl. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:270. **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994. **(tx)** Marinoni et al. 1992:124; Wood, Stevens, & Lezama 1992:270.

Page 1066 ***ocularis*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:270. **(tx)** Wood, Stevens, & Lezama 1992:270.

Page 1066 ***parvulus*** Ferrari. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:270. **(tx)** Wood, Stevens, & Lezama 1992:270.

Page 1067 ***pumilus*** Wood. Add:

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:270. **(tx)** Wood, Stevens, & Lezama 1992:270.

Page 1067 ***vescus*** Wood. Add:

DISTRIBUTION: NORTH AMERICA: Mexico (**Puebla, Veracruz**).
HOSTS: *Persea americana*.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:466. **(hb)** Noguera-Martinez & Atkinson 1990:466.

Page 1067 ***vicinus*** Wood. Add:

DISTRIBUTION: NORTH AMERICA: Mexico (**Veracruz**).
HOSTS: *Miconia glaberrima, Persea americana, Phoradendron* sp.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:466. **(hb)** Noguera-Martinez & Atkinson 1990:466.

Add species: ****antiquarius*** Bright & Poinar 1994:188. Holotype (♂); Dominican Republic amber; GOPC, Corvallis.

FIGURES: Bright & Poinar 1994:189.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: Bright & Poinar 1994.

Genus **Corthycyclon** Schedl

Page 1067 ***aztecum*** (Bright). Add:
DISTRIBUTION: NORTH AMERICA: Mexico **(Veracruz)**.
HOSTS: *Miconia glaberrima.*
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:464; Wood, Stevens, & Lezama 1992:271. **(tx)** Wood, Stevens, & Lezama 1992:271.

Page 1067 ***caliginis*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:271. **(tx)** Wood, Stevens, & Lezama 1992:271.

Page 1067 ***ebeninum*** (Blandford). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:271. **(tx)** Wood, Stevens, & Lezama 1992:271.

Page 1067 ***furvum*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:271. **(tx)** Wood, Stevens, & Lezama 1992:271.

Page 1068 ***morulum*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:271. **(tx)** Wood, Stevens, & Lezama 1992:271.

Page 1068 ***tardum*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:271. **(tx)** Wood, Stevens, & Lezama 1992:271.

Page 1068 ***ustum*** Schedl. Add:
REFERENCES: **(tx)** Marinoni et al. 1992:123.

Genus **Corthylocurus** Wood

Page 1068 ***aguacatensis*** (Schedl). Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Guerrero**).

Page 1068 ***barbatus*** (Blandford). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:272. **(tx)** Wood, Stevens, & Lezama 1992:272.

Page 1068 ***cincinnatus*** Bright. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:272. **(tx)** Wood, Stevens, & Lezama 1992:272.

Page 1069 ***costaricensis*** (Schedl). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:272. **(tx)** Wood, Stevens, & Lezama 1992:272.

Page 1069 ***debilis*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:272. **(tx)** Wood, Stevens, & Lezama 1992:272.

Page 1069 ***mexicanus*** (Schedl). Add:
HOSTS: *Miconia glaberrima.*
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:464; Wood, Stevens, & Lezama 1992:272. **(tx)** Wood, Stevens, & Lezama 1992:272.

Page 1069 ***vernaculus*** (Schedl). Add:
REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Genus **Corthylus** Erichson

Page 1069 **Corthylus** Erichson. Add:
REFERENCES: **(ds)** Hoganson & Ashworth 1992:108. **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Page 1070 ***argentinensis*** Schedl. Add:
DISTRIBUTION: SOUTH AMERICA: Brazil.

Page 1070 ***bifurcus*** Schedl. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:274. **(tx)** Wood, Stevens, & Lezama 1992:274.

Page 1070 ***brunnescens*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:275. **(tx)** Wood, Stevens, & Lezama 1992:275.

Page 1070 ***calamarius*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:274. **(tx)** Wood, Stevens, & Lezama 1992:274.

Page 1070 ***calmicolens*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:275. **(tx)** Wood, Stevens, & Lezama 1992:275.

Page 1070 ***cannularius*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:274. **(tx)** Wood, Stevens, & Lezama 1992:274.

Page 1070 ***cecropii*** Wood. Add:
DISTRIBUTION: SOUTH AMERICA: **Colombia**.
HOSTS: *Cecropia* sp.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:273. **(tx)** Wood, Stevens, & Lezama 1992:273.

Page 1071 ***collaris*** Blandford. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:274. **(tx)** Wood, Stevens, & Lezama 1992:274.

Page 1071 ***columbianus*** Hopkins. Add:
REFERENCES: **(cn)** Lindgren 1990.

Page 1071 ***comatus*** Blandford: Add:
DISTRIBUTION: NORTH AMERICA: Mexico **(Veracruz)**.
HOSTS: *Alnus jorullensis, Ficus elastica, Persea americana, Wercklea insignis*.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:465; Wood, Stevens, & Lezama 1992:276. **(hb)** Noguera-Martinez & Atkinson 1990:465. **(tx)** Wood, Stevens, & Lezama 1992:276.

Page 1072 ***comosus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:274. **(tx)** Wood, Stevens, & Lezama 1992:274.

Page 1072 ***concisus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Oaxaca).
HOSTS: *Guazuma ulmifolia.*
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:278. **(tx)** Wood, Stevens, & Lezama 1992:278.

Page 1072 ***consimilis*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico **(Veracruz)**.

Page 1072 ***convexicauda*** Eggers. Add:
REFERENCES: **(ec)** Carrano-Moreira & Macedo-Pedrosa 1994.

Page 1073 ***donaticus*** Wood. Add:
DISTRIBUTION: SOUTH AMERICA: **Ecuador**.

Page 1073 ***flagellifer*** Blandford. Add:
HOSTS: *Inga* sp., *Leucaenia pulverulenta.*
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:465.

Page 1074 ***fuscus*** Blandford. Add:
DISTRIBUTION: NORTH AMERICA: Mexico **(Veracruz)**.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:464.

Page 1074 ***granulatus*** Schedl. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:275. **(tx)** Wood, Stevens, & Lezama 1992:275.

Page 1074 ***granulifer*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:273. **(tx)** Wood, Stevens, & Lezama 1992:273.

Page 1074 ***luridus*** Blandford. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:277. **(tx)** Wood, Stevens, & Lezama 1992:277.

Page 1075 ***nanus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:277. **(tx)** Wood, Stevens, & Lezama 1992:277.

Page 1075 ***nevermanni*** (Schedl). Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:277. **(tx)** Wood, Stevens, & Lezama 1992:277.

Page 1075 ***niger*** (Schedl). Add:
REFERENCES: **(tx)** Marinoni et al. 1992:124.

Page 1075 ***nudipennis*** Schedl. Add:
REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994. **(tx)** Marinoni et al. 1992:123.

Page 1076 ***oculatus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:274. **(tx)** Wood, Stevens, & Lezama 1992:274.

Page 1076 ***panamensis*** Blandford. Add:
FIGURES: Equihua-Martinez 1992:61 (habitus, frons, antenna).
DISTRIBUTION: NORTH AMERICA: Mexico (Chiapas).

REFERENCES: (**ds**) Equihua-Martinez 1992:63; Wood, Stevens, & Lezama 1992:274. (**tx**) Wood, Stevens, & Lezama 1992:274.

Page 1076 ***papulans*** Eichhoff. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Hidalgo). SOUTH AMERICA: **Trinidad**.
HOSTS: *Inga* sp., *Spondias purpurea*.
REFERENCES: (**ds**) Atkinson & Peck 1994:327. (**ec**) Carrano-Moreira & Pedrosa-Macedo 1994. (**hb**) Atkinson & Peck 1994:327.

Page 1076 *spinifer* Schwarz (synonym of ***papulans*** Eichhoff). Add:
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:465; Wood, Stevens, & Lezama 1992:278. (**tx**) Wood, Stevens, & Lezama 1992:278.

Page 1077 ***procerus*** Bright. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:278. (**tx**) Wood, Stevens, & Lezama 1992:278.

Page 1077 ***ptyocerus*** Blandford. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:276. (**tx**) Wood, Stevens, & Lezama 1992:276.

Page 1077 ***pumilus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Guerrero**).
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:277. (**tx**) Wood, Stevens, & Lezama 1992:277.

Page 1077 ***punctatissimus*** (Zimmermann). Add:
REFERENCES: (**bv**) Larsen et al. 1994. (**ds**) Laplante et al. 1991:117; Larochelle 1979:51. (**hb**) Larsen et al. 1994; Robert 1948.

Page 1078 ***pygmaeus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:277. (**tx**) Wood, Stevens, & Lezama 1992:277.

Page 1078 ***retusifer*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:273. (**tx**) Wood, Stevens, & Lezama 1992:273.

Page 1078 ***retusus*** Wood. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:273. (**tx**) Wood, Stevens, & Lezama 1992:273.

Page 1079 ***robustus*** Schedl. Add:
REFERENCES: (**ec**) Carrano-Moreira & Pedrosa-Macedo 1994.

Page 1079 ***rubricollis*** Blandford. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:275. (**tx**) Wood, Stevens, & Lezama 1992:275.

Page 1079 ***sanguineus*** Schedl. Add:
REFERENCES: (**ds**) Wood, Stevens, & Lezama 1992:275. (**tx**) Wood, Stevens, & Lezama 1992:275.

Page 1079 ***senticosus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Xalapa).
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:465.

Page 1079 ***sentus*** Wood. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Queretaro, Veracruz**), **Panama**.
HOSTS: *Rosa* sp.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:465; Wood, Stevens, & Lezama 1992:277. **(tx)** Wood, Stevens, & Lezama 1992:277.

Page 1079 ***serratus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:278. **(tx)** Wood, Stevens, & Lezama 1992:278.

Page 1079 ***simplex*** Wood. Add:
HOSTS: *Miconia* sp.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:274. **(tx)** Wood, Stevens, & Lezama 1992:274.

Page 1079 ***sobrinus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:277. **(tx)** Wood, Stevens, & Lezama 1992:277.

Page 1080 ***strigilis*** Wood. Add:
HOSTS: *Ficus* sp.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:274. **(tx)** Wood, Stevens, & Lezama 1992:274.

Page 1080 ***subserratus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:278. **(tx)** Wood, Stevens, & Lezama 1992:278.

Page 1080 ***suturalis*** Eggers. Add:
REFERENCES: **(ec)** Carrano-Moreira & Pedrosa-Macedo 1994.

Page 1080 ***suturifer*** Schedl. Add:
HOSTS: *Inga* sp.
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990:465.

Page 1080 ***trucis*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:277. **(tx)** Wood, Stevens, & Lezama 1992:277.

Page 1080 ***trunculus*** Wood. Add:
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:276. **(tx)** Wood, Stevens, & Lezama 1992:276.

Page 1080 ***uniseptis*** Schedl. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (**Jalisco**).
HOSTS: *Heliocarpus appendiculatus*.

Page 1081 ***villifer*** Wood. Add:
HOSTS: *Boehmeria ulmifolia*.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:274. **(tx)** Wood, Stevens, & Lezama 1992:274.

Page 1081 ***villus*** Bright. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Oaxaca).
HOSTS: *Spondias radlkoferi*.

REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:273. **(tx)** Wood, Stevens, & Lezama 1992:273.

Page 1081 ***zelus*** Wood. Add:
HOSTS: *Miconia pubescens*.
REFERENCES: **(ds)** Wood, Stevens, & Lezama 1992:276. **(tx)** Wood, Stevens, & Lezama 1992:276.

New Genus ***Corthylites** Bright & Poinar 1994:187. Type species: ***Corthylites bicolor*** Bright & Poinar, monotypic.
REFERENCES: **(tx)** Bright & Poinar 1994:187.

bicolor Bright & Poinar 1994:188. Holotype (♀); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:187.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: **(tx)** Bright & Poinar 1994.

New Genus ***Paleophthorus** Bright & Poinar 1994:188. Type species: ***Paleophthorus bispinatus***, monotypic.
REFERENCES: Bright & Poinar 1994:188.

bispinatus Bright & Poinar 1994:190. Holotype (sex?); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:189,191.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: **(tx)** Bright & Poinar 1994.

GENERA INCERTAE SEDIS

Genus ***Carphoborites** Schedl

Page 1082 ***Carphoborites** Schedl. Add:
NOTES: Carpenter 1992:316 (mistakenly states generic name, *Carphoborites*, is a nomen nudum, and takes authorship of name).
REFERENCES: **(ds)** Carpenter 1992:316. **(tx)** Carpenter 1992:316.

Page 1082 ***keilbachi*** Schedl. Add:
REFERENCES: **(ds)** Carpenter 1992:316.

Genus ***Cryphalites** Cockerell

Page 1082 ***Cryphalites** Cockerell. Add:
REFERENCES: **(ds)** Carpenter 1992:316.

Page 1082 ***rugosissimus*** Cockerell. Add:
REFERENCES: **(ds)** Carpenter 1992:316.

Genus ***Taphramites** Schedl

Page 1082 ***Taphramites** Schedl. Add:
REFERENCES: **(ds)** Carpenter 1992:317.

Page 1082 ***gnathotrichus*** Schedl. Add:
REFERENCES: **(ds)** Carpenter 1992:317; Schedl 1970c. **(tx)** Schedl 1970c.

Genus ***Xyleborites** Wickham

Page 1082 ***Xyleborites** Wickham. Add:
REFERENCES: (**ds**) Carpenter 1992:318.

Page 1082 ***longipennis*** Wickham. Add:
REFERENCES: (**ds**) Carpenter 1992:318.

Genus ***Xylechinites** Hagedorn

Page 1082 ***Xylechinites** Hagedorn. Add:
REFERENCES: (**ds**) Carpenter 1992:318.

Page 1082 ***anceps*** Hagedorn. Add:
REFERENCES: (**ds**) Carpenter 1992:318; Spahr 1981:62.

Genus **Cynanchophagus** Axentjev

Page 1083 ***cornutus*** Axentjev. Add:
FIGURES: Aksent'yev 1994:6 (larval features).
HOSTS: *Cynanchum tataricum*.
NOTES: This taxon probably belongs in the Dryocoetini.
REFERENCES: (**an**) Aksent'yev 1994:5.

Catalog of Platypodidae, Supplement 1

The following is a list of significant references that treat the entire family or major portions thereof. Included are references to symposium proceedings, or books in which many species of Platypodidae are mentioned, in addition to references to other catagories.

Page 1084 **FAMILY PLATYPODIDAE ERICHSON**. Add:
FIGURES: Booth, Cox, & Madge 1990:294 (larvae).
NOTES: Names in Schedl 1962k (see 1987 bibliography) were actually validated in January 1965. Data corrected herein.
Wood S. L.(1993) revised the genera of the Platypodidae. His reorganization is not adopted here, but his species assignment is noted.
REFERENCES: **(cn)** Baksha 1990:16. **(ds)** Burakowski et al. 1992:121–122. **(hb)** May 1993:96. **(tx)** Booth, Cox, & Madge 1990:294; Burakowski et al. 1992:121–122. (catalog, Polish spp.); Lawrence & Britton 1994:158; May 1993:96; Pfeffer 1994c:207; Thompson 1992: Wood 1993.

Subfamily Tesserocerinae Blandford

TRIBE DIAPODINI

Genus **Diapus** Chapuis

Page 1088 **Diapus** Chapuis. Add:
KEYS: Ohno 1990b:31 (to intercepted species in Japan). Roberts 1993:5 (to Papua New Guinean species).
REFERENCES: **(tx)** Roberts 1993.

Page 1088 ***aculeatus*** Blandford. Add:
DISTRIBUTION: ASIA: China, Taiwan.
REFERENCES: **(tx)** Ohno 1990b:32.

Page 1088 ***amblylaminatus*** Roberts 1993:8. Add:
FIGURES: Roberts 1993:34 (elytral apex), 37 (head & pronotum).
HOSTS: Delete *Castanopsis* sp.
REFERENCES: **(tx)** Roberts 1993:8 (delete Roberts 1992:(in press)).

Page 1088 ***angustidontus*** Roberts 1993:8. Add:
FIGURES: Roberts 1993:33 (elytral apex), 36 (pronotum), 37 (head & pronotum).
REFERENCES: **(tx)** Roberts 1993:8 (delete Roberts 1992:(in press)).

Page 1088 ***bilunatus*** Schedl. Add:
FIGURES: Roberts 1993:34 (elytral apex), 37 (head & pronotum).
REFERENCES: **(tx)** Roberts 1993:9 (delete Roberts 1992:(in press)).

Page 1088 ***bispinus*** Schedl. Correct type depository to National Forest Insect Colln., Lae. Add:
FIGURES: Roberts 1993:33 (elytral apex), 35 (pronotum), 36 (head), 37 (head & pronotum).
REFERENCES: **(tx)** Roberts 1993:10.

Page 1089 ***borneensis*** Browne. Add:
HOSTS: *Anisoptera* sp., *Dipterocarpus* sp., *Dryobalanops* sp., Sapotaceae sp., *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990d:102. **(tx)** Ohno 1990b:32.

Page 1089 ***elongatus*** Schedl. Add:
FIGURES: Roberts 1993:38 (antenna).
HOSTS: *Nothofagus pullei*, *Ternostroenia* sp.
NOTES: Roberts 1993:11 reports types lost. Paratypes in NHMW and NFICL.
REFERENCES: **(tx)** Roberts 1993:11 (delete Roberts 1992:(in press)).

Page 1089 ***kuperi*** Roberts 1993:12. Add:
FIGURES: Roberts 1993:33 (elytral apex).
REFERENCES: **(tx)** Roberts 1993:12 (delete Roberts 1992:(in press)).

Page 1089 ***latespinis*** Schedl. Add:
FIGURES: Roberts 1993:33 (elytral apex), 35 (pronotum), 37 (head & pronotum), 38 (antenna).
REFERENCES: **(tx)** Roberts 1993:13 (delete Roberts 1992:(in press)).

Page 1089 ***minor*** Schedl. Add:
HOSTS: *Dryobalanops* sp.
REFERENCES: **(ds)** Ohno 1990d:102. **(tx)** Ohno 1990b:32.

Page 1089 ***minutissimus*** Schedl. Add:
HOSTS: *Dipterocarpus* sp., *Dryobalanops* sp., *Shorea* sp., *Vatica* sp.
REFERENCES: **(ds)** Ohno 1990d:102. **(tx)** Ohno 1990b:32.

Page 1090 ***nanodontus*** Roberts 1993:13. Add:
FIGURES: Roberts 1993:34 (elytral apex), 37 (head & pronotum).
REFERENCES: **(tx)** Roberts 1993:13 (delete Roberts 1992:(in press)).

Page 1090 ***nanus*** Schedl. Add:
FIGURES: Roberts 1993:36 (head), 37 (head & pronotum).
NOTES: Roberts 1993:14 reports types lost. Paratypes in NHMW and NFICL.
REFERENCES: **(tx)** Roberts 1993:14 (delete Roberts 1992:(in press)).

Page 1090 ***nebulosus*** Roberts 1993:15. Add:
HOSTS: *Acmena* sp.
REFERENCES: **(tx)** Roberts 1993:15 (delete Roberts 1992:(in press)).

Page 1090 ***oomsis*** Roberts 1993:16. Add:
FIGURES: Roberts 1993:33 (elytral apex), 37 (head & pronotum).
REFERENCES: **(tx)** Roberts 1993:16 (delete Roberts 1992:(in press)).

Page 1090 ***oreogenus*** Roberts 1993:17. Add:
FIGURES: Roberts 1993:34 (elytral apex), 35 (pronotum), 36 (head), 37 (head & pronotum).

REFERENCES: **(tx)** Roberts 1993:17 (delete Roberts 1992:(in press)).

Page 1090 ***papuanus*** Schedl. Add:
FIGURES: Roberts 1993:37 (head & pronotum).
NOTES: Roberts 1993:18 reports types lost. Paratypes in NHMW and NFICL.
REFERENCES: **(tx)** Roberts 1993:18.

Page 1090 ***pendleburyi*** Schedl. Add:
DISTRIBUTION: ASIA: Cambodia, Indonesia (Sumatra).
HOSTS: *Anisoptera* sp., *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990d:102. **(tx)** Ohno 1990b:32.

Page 1090 ***perpygmaeus*** Roberts 1993:20. Add:
FIGURES: Roberts 1993:34 (elytral apex), 35 pronotum, elytral apex), 37 (head & pronotum).
REFERENCES: **(tx)** Roberts 1993:20 (delete Roberts 1992:(in press)).

Page 1090 ***pusillimus*** Chapuis. Add:
FIGURES: Roberts 1993:34 (elytral apex), 37 (head & pronotum); Zimmerman 1992:647 (adult ♀).
HOSTS: Many listed in Ohno 1990d:102. Also: *Intsia bijuga.*
NOTES: Roberts 1993:21, quoting Schedl 1972, records this species from several countries in Africa and other areas. This is an error. The catalog distribution is correct.
REFERENCES: **(ds)** Ohno 1990d:102. **(tx)** Naumann 1993:160; Ohno 1990b:32; Roberts 1993:21.

Page 1091 ***quadrispinosus*** Schedl. Add:
REFERENCES: **(ds)** Ohno 1990b:32. **(tx)** Ohno 1990b:32.

Page 1091 ***quinquespinatus*** Chapuis. Add:
FIGURES: Roberts 1993:37 (head & pronotum); Zimmerman 1992:647 (adult ♀).
HOSTS: Many listed in Ohno 1990d:102. Also: *Anisoptera* sp., *Eucalyptus deglupta, Spondias* sp.
REFERENCES: **(ds)** Ohno 1990d:102. **(hb)** Beaver & Löyttyniemi 1991. **(tx)** Ohno 1990b:32; Roberts 1993:22.

Page 1092 ***robustus*** Schedl. Add:
FIGURES: Roberts 1993:34 (elytral apex), 36 (head), 37 (head & pronotum), 38 (antenna).
NOTES: Roberts 1993:23 reports type lost. Paratypes in NHMW and NFICL.
REFERENCES: **(tx)** Roberts 1993:23.

Page 1092 ***spinatus*** Browne. Add:
DISTRIBUTION: ASIA: Borneo.
HOSTS: *Anisoptera* sp., *Dipterocarpus* sp., *Dryobalanops* sp., *Dyera* sp., *Shorea* sp., *Tarrietia* sp.
REFERENCES: **(ds)** Ohno 1990d:102. **(tx)** Ohno 1990b:31.

Page 1092 ***spinifer*** Schedl. Add:
FIGURES: Roberts 1993:33 (elytral apex), 35 (pronotum), 36 (pronotum), 37 (head & pronotum).

NOTES: Roberts 1993:24 reports type lost. Paratypes in NHMW and NFICL.
REFERENCES: (**tx**) Roberts 1993:24.

Page 1092 ***truncatus*** Niisima & Murayama. Add:
DISTRIBUTION: ASIA: Thailand.
REFERENCES: (**tx**) Ohno 1990b:32.

Page 1092 ***turgidus*** Roberts 1993:24. Add:
FIGURES: Roberts 1993:34 (elytral apex), 35 (pronotum, elytral apex), 36 (head), 37 (head & pronotum).
HOSTS: *Sphenostemnon* sp.
REFERENCES: (**tx**) Roberts 1993:24 (delete Roberts 1992:(in press)).

Page 1093 ***unispineus*** Roberts 1993:25. Add:
FIGURES: Roberts 1993:34 (elytral apex), 35 (pronotum, elytral apex), 36, 37 (pronotum, head).
REFERENCES: (**tx**) Roberts 1993:25 (delete Roberts 1992:(in press)).

Genus **Genyocerus** Motschulsky

Page 1093 **Genyocerus** Motschulsky. Add:
KEYS: Ohno 1990b:32 (to intercepted species in Japan). Roberts 1993:27 (to Papua New Guinean species).
REFERENCES: (**tx**) Roberts 1993:27.

Page 1093 ***abdominalis*** (Schedl). Add:
DISTRIBUTION: ASIA: Indonesia (Sumatra).
HOSTS: *Anisoptera* sp., *Dipterocarpus* sp., *Dryobalanops* sp., *Durio* sp., *Hopea* sp., *Mangifera* sp., *Palaquium* sp., *Pterocymbium? beccarii*, Sapotaceae sp., *Shorea* sp., *Upuna borneensis, Vatica* sp.
REFERENCES: (**ds**) Ohno 1990d:103. (**tx**) Ohno 1990b:34.

Page 1093 ***albipennis*** Motschulsky. Add:
DISTRIBUTION: ASIA: Japan.

Page 1093 ***biporus*** (Schedl). Add:
DISTRIBUTION: ASIA: India.
HOSTS: *Anisoptera* sp., *Dryobalanops* sp.
REFERENCES: (**ds**) Ohno 1990d:103. (**tx**) Ohno 1990b:34.

Page 1093 ***compactus*** (Schedl). Add:
DISTRIBUTION: ASIA: Borneo, Indonesia (Sumatra).
HOSTS: *Dryobalanops* sp., *Shorea* sp.
REFERENCES: (**ds**) Ohno 1990d:103. (**tx**) Ohno 1990b:33.

Page 1093 ***decimspinatus*** (Schedl). Add:
REFERENCES: (**tx**) Ohno 1990b:34. (**tx**) Ohno 1990b:33.

Page 1094 ***diaphanus*** (Schedl). Add:
FIGURES: Booth, Cox, & Madge 1990:202 (adult).
DISTRIBUTION: ASIA: Cambodia.
REFERENCES: (**ds**) Booth, Cox, & Madge 1990:202. (**tx**) Booth, Cox, & Madge 1990:202.

Page 1094 *assamensis* Browne (synonym of ***diaphanus*** (Schedl)). Add:
REFERENCES: (**tx**) Ohno 1990b:33.

Page 1094 ***dipterocarpi*** Browne. Add:
DISTRIBUTION: ASIA: Burma, Indonesia (Sumatra), Vietnam.
REFERENCES: Ohno 1990b:34.

Page 1094 ***exilis*** (Schedl). Add:
HOSTS: *Anisoptera* sp., *Dipterocarpus* sp., *Dryobalanops* sp., *Upuna borneensis*.
REFERENCES: (**ds**) Ohno 1990d:103. (**tx**) Ohno 1990b:33.

Page 1094 ***intermedius*** (Browne). Add:
DISTRIBUTION: ASIA: Vietnam.
REFERENCES: (**tx**) Ohno 1990b:34.

Page 1094 ***papuanus*** Roberts 1993:27. Add:
FIGURES: Roberts 1993:38 (antenna), 39 (head, pronotum).
REFERENCES: (**tx**) Roberts 1993:27 (delete Roberts 1992:(in press)).

Page 1095 ***philippinensis*** (Schedl). Add:
REFERENCES: (**tx**) Ohno 1990b:34.

Page 1095 ***puer puer*** (Schedl). From **Diapus**. Add:
FIGURES: Roberts 1993:39 (head, pronotum).
NOTES: Roberts 1993:28 reports type lost. Paratypes in NHMW and NFICL.
REFERENCES: (**tx**) Roberts 1993:28 (delete Roberts 1992:(in press)).

Page 1095 ***puer fergussonus*** Roberts. Delete entire entry. Add next entry below.

puer trispinatus (Browne). Add:
NOTES: Roberts 1993:29 gives this subspecies new status and credits its name to Browne. There are nomenclatural problems with this action that will be addressed in the future by Roberts.

Page 1095 ***trispinatus*** (Schedl) (listed as a synonym of ***puer puer*** (Schedl)). Add:
REFERENCES: (**tx**) Ohno 1990b:33.

Page 1095 ***quadrifoveolatus*** (Schedl). Add:
HOSTS: *Dipterocarpus* sp., *Dryobalanops* sp.
REFERENCES: (**ds**) Ohno 1990d:103. (**tx**) Ohno 1990b:33.

Page 1095 ***sexporus*** (Schedl). Add:
HOSTS: *Gonystylus bancanus*.
REFERENCES: (**ds**) Sakartana 1989b:38.

Page 1095 ***shoreae*** Browne. Add:
REFERENCES: (**tx**) Ohno 1990b:33.

Page 1096 ***talurae*** (Stebbing). Add:
DISTRIBUTION: ASIA: Borneo.
HOSTS: *Anisoptera* sp.

Page 1096 ***furtivus*** Sampson (synonym of ***talurae*** (Stebbing)). Add:
REFERENCES: **(ds)** Ohno 1990d:103. **(ec)** Boucek 1980:75. **(tx)** Ohno 1990b:34.

Page 1096 ***tenellus*** (Schedl). Add:
REFERENCES: **(tx)** Ohno 1990b:33.

TRIBE TESSEROCERINI

Genus **Platytarsulus** Schedl

Page 1097 **Platytarsulus** Schedl. Add:
KEYS: Ohno 1990b:34 (to intercepted species in Japan).

Page 1097 ***biconicus*** Schedl. Add:
HOSTS: *Dryobalanops* sp., *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990d:103. **(tx)** Ohno 1990b:35.

Page 1097 ***declivis*** Schedl. Add:
DISTRIBUTION: ASIA: Borneo.
REFERENCES: **(ds)** Ohno 1990d:103. **(tx)** Ohno 1990b:35.

Page 1097 ***elongatus*** Schedl. Add:
FIGURES: Zimmerman 1992:647 (adult ♂).
DISTRIBUTION: ASIA: Indonesia (Sumatra), Philippine Islands.
HOSTS: *Anisoptera* sp., *Dipterocarpus* sp., *Vatica* sp.
REFERENCES: **(ds)** Ohno 1990d:103. **(tx)** Ohno 1990b:34.

Page 1097 ***tuberculatus*** Browne. Add:
REFERENCES: **(ds)** Ohno 1990d:103. **(tx)** Ohno 1990b:34.

Genus **Tesserocerus** Saunders

Add species: ****primus*** Bright & Poinar 1994:176. Holotype (♂); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:171,175.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: **(tx)** Bright & Poinar 1994.

Genus **Spathidicerus** Chapuis

Page 1102 ***thomsoni*** Chapuis. Add:
DISTRIBUTION: ASIA: India.
HOSTS: *Octomeles sumatrana*, *Scaphium* sp.
REFERENCES: **(ds)** Ohno 1990d:102.

Genus **Cenocephalus** Chapuis

Page 1109 **Cenocephalus** Chapuis. Add:
REFERENCES: **(ds)** Carpenter 1992:316.

Page 1109 ****hurdi*** Schedl. Add:
NOTES: Holotype lost, not in cited location.
REFERENCES: **(tx)** Bright & Poinar 1994:192.

Page 1109 ****quadrilobus*** Schedl. Add:
REFERENCES: (**tx**) Bright & Poinar 1994:192.

Page 1110 ****succinicaptus*** Schedl. Add:
NOTES: Holotype is distorted and broken. Impossible to recognize.
REFERENCES: (**tx**) Bright & Poinar 1994:192.

Add species: ****antillicus*** Bright & Poinar 1994:171. Holotype (♂); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:171,173.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: (**tx**) Bright & Poinar 1994.

****antiguus*** Bright & Poinar 1994:172. Holotype (♂); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:171,173.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: (**tx**) Bright & Poinar 1994.

****biconicus*** Bright & Poinar 1994:172. Holotype (♂); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:171,173,174.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: (**tx**) Bright & Poinar 1994.

****exquisitus*** Bright & Poinar 1994:172. Holotype (♂); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:171,174.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: (**tx**) Bright & Poinar 1994.

****senectus*** Bright & Poinar 1994:172. Holotype (♂); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:171,174,175.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: (**tx**) Bright & Poinar 1994.

****spinatus*** Bright & Poinar 1994:174. Holotype (♂); Dominican Republic amber; GOPC, Corvallis.
FIGURES: Bright & Poinar 1994:171,175.
DISTRIBUTION: NORTH AMERICA: Dominican Republic.
REFERENCES: (**tx**) Bright & Poinar 1994.

Subfamily Platypodinae Erichson

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Page 1113 **Platypodini.** Add;
REFERENCES: Pfeffer 1994c:209.

Genus **Platypus** Chapuis

Page 1113 **Platypus** Chapuis. Add:

KEYS: Pfeffer 1989:92 (to Czechoslovakian species); Pfeffer 1994b:180 (to Central European species), 1994c:208 (to Palearctic species).

FIGURES: Epila-Otara & Triplehorn 1990:347 (aedeagus).

REFERENCES: (**cn**) Thapa 1992. (**hb**) Sun, Yin, & Sheng 1991. (**tx**) May 1993:97; Pfeffer 1989:92, 1994b:180, 1994c:208.

Page 1114 ***acetabuliformis*** Roberts. Add:

FIGURES: Roberts 1986:55 (♂ declivity).

Page 1114 ***acetabuliformis comalis*** Roberts. Add:

FIGURES: Roberts 1989b:286 (♂ declivity).

HOSTS: *Galbulimima* sp.

Page 1115 ***aequilaterus*** Roberts. Add:

FIGURES: Roberts 1986:56 (♂ declivity).

Page 1115 ***alternantecostatus*** (Schedl). Add:

REFERENCES: (**ds**) Ohno 1990d:96.

Page 1115 ***ambiguus*** Roberts & Morimoto (correct authors names). Correct all references "Roberts 1987" to Roberts & Morimoto 1987).

Page 1116 ***apicalis*** (White). Add:

FIGURES: Kuschel 1990:100 (adult); May 1993:208,209 (larval characters); Miller 1971:81 (adult); Zimmerman 1992:649 (adult ♂).

HOSTS: *Agathis australis, Castanea sativa, Corynocarpus laevigatus, Dysoxylum spectabile, Eucalyptus saligna, Nothofagus solandri, Olearia rani, Pinus radiata.*

REFERENCES: (**an**) May 1993:98. (**ds**) Kuschel 1990:76; Spiller & Wise 1982:184. (**hb**) May 1993:98; Miller 1971:81. (**tx**) May 1993:97.

Page 1117 *douei* Chapuis (synonym of ***apicalis*** (White)). Add:

REFERENCES: (**hb**) Miller 1971:81.

Page 1118 ***artesolidus*** Schedl. Add:

HOSTS: *Dipterocarpus* sp., *Shorea* sp.

REFERENCES: (**ds**) Ohno 1990d:96.

Page 1118 ***aspicis*** Roberts & Morimoto. Add:

FIGURES: Roberts & Morimoto 1987:179 (♂ elytra).

HOSTS: Sticky trap on *Galbulimima* sp. (delete *Planchonella* sp.).

Page 1118 ***australis*** Chapuis. Add:

FIGURES: Zimmerman 1992:649 (adult ♂).

NOTES: Wood 1993:279 (treated in **Treptoplatypus** Wood).

REFERENCES: (**tx**) Naumann 1993:161; Wood 1993:279.

Page 1119 ***bajulus*** Schedl. Add:

HOSTS: *Dyera* sp.

REFERENCES: (**ds**) Ohno 1990d:96.

Page 1119 ***balanocarpus*** Schedl. Add *planodeclivis* Schedl and *emarginatulus* Browne as synonyms. Add:
DISTRIBUTION: ASIA: Indonesia (Sarawak), Malaysia (Sabah).
HOSTS: *Anisoptera* sp., *Dipterocarpus* sp., *Dryobalanops* sp., *Shorea* sp., *Vatica* sp.
REFERENCES: **(ds)** Ohno 1990d:96. **(tx)** Beaver 1995:199; Wood 1993:278.

Page 1120 *bicaudatus* Browne. Move to ***bifidus*** Schedl as a synonym. Add:
SYNONYMY: Beaver 1995:201.
REFERENCES: **(ds)** Ohno 1990d:96.

Page 1120 ***bifidus*** Schedl. Add *bicaudatus* Browne as a synonym. Move to **Treptoplatypus** Schedl. Add:
REFERENCES: **(tx)** Beaver 1995:201.

Page 1120 ***biformis*** Chapuis. Add:
REFERENCES: **(cn)** Thapa & Singh 1990.

Page 1120 ***bifurcus*** (Schedl). Add:
REFERENCES: **(ds)** Bain 1977b:18.

Page 1121 ***bipyramidus*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:176 (♂ elytra).

Page 1121 ***biuncus*** Blandford. Add:
HOSTS: Many listed in Ohno 1990d:96.
NOTES: Wood 1993:279 (treated in **Dinoplatypus** Wood).
REFERENCES: **(ds)** Ohno 1990d:96. **(tx)** Wood 1993:279.

Page 1122 ***borneensis*** Browne. Add:
REFERENCES: **(ds)** Ohno 1990d:97.

Page 1122 ***brasiliensis*** Nunberg. Add:
DISTRIBUTION: SOUTH AMERICA: Peru.
NOTES: Wood 1993:281 (treated in **Epiplatypus** Wood).
REFERENCES: **(tx)** Wood 1993:281.

Page 1122 ***caelestis*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:164 (♂ pronotum, ♂ & ♀ elytra).
HOSTS: *Macaranga* sp. (delete *Xanthomyrtus* sp.).

Page 1122 ***calamus*** Blandford. Add:
NOTES: Wood 1993:279 (treated in **Dinoplatypus** Wood).
REFERENCES: **(cn)** Hijii et al. 1991. **(ec)** Hijii et al. 1991. **(tx)** Wood 1993:279.

Page 1123 ***caledoniae*** Schedl. Add *duplicatus* Schedl as a synonym. Add:
HOSTS: *Agathis* sp.
REFERENCES: **(tx)** Beaver 1995:200.

Page 1123 ***candezei*** Chapuis. Add:
HOSTS: *Agathis* sp.
REFERENCES: **(ds)** Ohno 1990d:97.

Page 1123 ***capitilanatus*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:168 (♂ elytra, ♀ head).

HOSTS: *Dysoxylum* sp., *Ficus* sp., *Prunus* sp. (delete *Macaranga* sp.).

Page 1123 ***carbonescens*** (Beeson). Add:
FIGURES: Zimmerman 1992:651 (adult ♂).

Page 1124 ***caviceps*** Broun. Add:
FIGURES: May 1993:209 (larval characters); Miller 1971:81 (adult).
HOSTS: *Nothofagus fusca, N. menziesii, N. solandri.*
REFERENCES: (**an**) May 1993:98. (**ds**) Spiller & Wise 1982:184. (**hb**) May 1993:98; Miller 1971:81. (**tx**) May 1993:98.

Page 1124 ***cavus*** Strohmeyer. Add:
HOSTS: Many listed in Ohno 1990d:97. Also: *Gonystylus bancanus.*
NOTES: Wood 1993:279 (treated in **Dinoplatypus** Wood).
REFERENCES: (**ds**) Burakowski et al. 1992:121; Ohno 1990d:97; Sukartana 1989b:38. (**tx**) Burakowski et al. 1992:121; Wood 1993:279.

Page 1124 ***celsus*** Roberts. Add:
FIGURES: Roberts 1979:89 (♂ pronotum, elytra).

Page 1126 ***compositus*** Say. Add:
DISTRIBUTION: NORTH AMERICA: United States (Florida).
HOSTS: *Taxodium distichum.*
NOTES: Wood 1993:280 (treated in **Euplatypus** Wood).
REFERENCES: (**ds**) Atkinson & Peck 1994:317. (**hb**) Atkinson & Peck 1994:317; Carrano-Moreira, Berisford, & Dalusky 1993. (**tx**) Wood 1993:280.

Page 1128 ***corniventris*** Schedl. Add:
REFERENCES: (**tx**) Roberts 1989b:267.

Page 1128 ***crassicornis*** Schedl. Add:
FIGURES: Roberts 1979:93 (♀ head, ♂ habitus).
HOSTS: *Nothofagus* sp.

Page 1129 ***cupulatus*** Chapuis. Add:
HOSTS: Many listed in Ohno 1990d:97. Also: *Gonystylus bancanus.*
NOTES: Wood 1993:279 (treated in **Dinoplatypus** Wood).
REFERENCES: (**ds**) Ohno 1990d:97; Sukartana 1989b:38; Wood 1993:279.

Page 1130 ***curtus*** Chapuis. Add:
FIGURES: Zimmerman 1992:651 (adult ♂,♀).
HOSTS: Many listed in Ohno 1990d:97.
REFERENCES: (**ds**) Ohno 1990d:97.

Page 1130 ***cylindrus*** (Fabricius). Add:
FIGURES: del Tío, Soria, & Ocete 1993 (larva); Joly 1977:11 (larva, adult); Korolyov 1989:110–113 (larva); Pfeffer 1994b:181 (adult ♀), 1994c:298 (♀ habitus, antenna).
HOSTS: *Alnus glutinosa, Carpinus betulus, Castanea sativa, Fraxinus angustifolia, F. excelsior, Prunus avium, Pyrus communis, Quercus castaneifolia, Q. castaneifolia incana, Q. cerris, Q. frainetto, Q. ilex, Q. lusitanica, Q. pedunculata, Q. petraea,*

Q. robur, Q. rotundifolia, Q. sessilifloria, Q. suber, Sorbus aucuparia, Tilia sp., *Ulmus laevis, U. minor.*
REFERENCES: (**an**) del Tío & Ocete 1992; del Tío, Soria, & Ocete 1993; Korolyov 1989:110. (**cn**) Baciu et al. 1981; Cabral, Lopes, & Sardinha 1993; Ferreira 1992a; Georgescu, Teodoru, & Badea 1945; Hyman 1992:374. (**ds**) Alexander 1992; Burakowski et al. 1992:121; Ferreira 1992a; Hyman 1992:374; James 1994:172; József 1992; Owen 1993:160; Pfeffer 1994c:208; Schott 1986:58. (**ec**) Cabral, Lopes, & Sardinha 1993; Carreira & Araújo 1992; Ferreira 1992a; Georgescu, Teodoru, & Badea 1945; Hyman 1992:374. (**hb**) Koch 1992:170; Owen 1993. (**tx**) Burakowski et al. 1992:121; Korolyov 1989:110; Pfeffer 1994b:180, 1994c:208,210.

Page 1130 *cylindriformis* Reitter (synonym of ***cylindrus*** (Fabricius)). Add:
REFERENCES: (**an**) Korolyov 1989:111. (**tx**) Korolyov 1989:111.

Page 1133 ***cymbiformis*** Roberts. Add:
FIGURES: Roberts 1979:97 (♂ elytra).

Page 1133 ***daedalus*** Roberts. Add:
FIGURES: Roberts 1979:97 (♂ elytral apex).

Page 1134 ***deflectus*** Schedl. Add:
HOSTS: *Canarium* sp.
REFERENCES: (**ds**) Ohno 1990d:97.

Page 1134 ***denticulatus*** Browne. Add:
HOSTS: "Red beech".

Page 1134 ***dibrachiatus*** Roberts. Add:
FIGURES: Roberts 1989b:286 (♂ elytral apex).

Page 1135 ***dipterocarpi*** Browne. Add:
REFERENCES: (**ds**) Ohno 1990d:97.

Page 1135 ***discicollis*** Chapuis. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Veracruz).
HOSTS: *Dialium guianense.*
NOTES: Wood 1993:280 (treated in **Megaplatypus** Wood).
REFERENCES: (**tx**) Wood 1993:280.

Page 1136 ***dobunabae*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:164 (♂ elytral apex).

Page 1136 ***dryobalanopsis*** Browne. Add:
HOSTS: *Dipterocarpus* sp., *Dryobalanops* sp., *Shorea* sp.
REFERENCES: (**ds**) Ohno 1990d:97.

Page 1136 *duplicatus* Schedl. Move to ***caledoniae*** Schedl as a synonym. Add:
SYNONYMY: Beaver 1995:200.

Page 1137 ***durioverus*** Browne. Add:
REFERENCES: (**ds**) Ohno 1990d:97.

Page 1137 ***dyerae*** Browne. Add:
REFERENCES: (**ds**) Ohno 1990d:97.

Page 1137 ***echinatus*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:179 (♂ elytra).

Page 1137 *emarginatulus* Browne. Move to ***balanocarpus*** Schedl as a synonym. Add:
SYNONYMY: Beaver 1995::199.
REFERENCES: **(ds)** Ohno 1990d:97.

Page 1137 ***enixus*** Schedl. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Oaxaca, Veracruz).
HOSTS: *Dialium guianense*.
NOTES: Wood 1993:282 (treated in **Teloplatypus** Wood).
REFERENCES: **(tx)** Wood 1993:282.

Page 1138 ***evanidinervius*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:179 (♂ elytra).

Page 1138 ***evanidus*** Roberts. Add:
FIGURES: Roberts 1986:53 (♀ pronotum, ♂ elytral apex).

Page 1138 ***excisus*** Chapuis. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Oaxaca).
HOSTS: *Citrus sinensis, Dialium guianense, Inga* sp., *Pinus caribaea, Pterocarpus rohrii, Rhamnus capreaefolia, Swietenia macrophylla.*
NOTES: Wood 1993:282 (treated in **Teloplatypus** Wood).
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990. **(hb)** Noguera-Martinez & Atkinson 1990. **(tx)** Wood 1993:282.

Page 1139 ***ficus*** Roberts. Add:
FIGURES: Roberts 1970a:72 (♂ habitus, elytral apex).

Page 1139 ***flavicornis*** (Fabricius). Add:
NOTES: Wood 1993:279 (treated in **Myoplatypus** Wood).
REFERENCES: **(ds)** Atkinson & Peck 1994:318. **(hb)** Atkinson & Peck 1994:318; Carrano-Moreira, Berisford, & Dalusky 1993. **(ms)** Skirkevicius 1993:61. **(tx)** Wood 1993:279.

Page 1141 ***franciai*** Browne. Add:
HOSTS: *Vatica* sp.
REFERENCES: **(ds)** Ohno 1990d:98.

Page 1141 ***froggatti*** Sampson. Add:
FIGURES: Zimmerman 1992:655 (adult ♂).
REFERENCES: **(tx)** Naumann 1993:161.

Page 1142 ***geminatus*** Chapuis. Add:
FIGURES: Zimmerman 1992:651 (adult ♂).

Page 1142 ***gerstaeckeri*** Chapuis. Add:
HOSTS: Roberts 1977b:577 lists 50 tree species attacked in Fiji, with apparent preference for *Myristica* sp, and plantation *Swietenia* sp.

Page 1143 ***giluwei*** Roberts. Add:
FIGURES: Roberts 1979:89 (adult ♂, ♀ elytral apex).

Page 1143 ***glochideus*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:179 (♂ elytra).

Page 1143 ***godmani*** Blandford. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Veracruz)
HOSTS: *Bauhinia* sp., *Cecropia obtusifolia, Citherexylum* sp., *Heliocarpus appendiculatus*.
NOTES: Wood 1993:280 (treated in **Megaplatypus** Wood).
REFERENCES: **(ds)** Noguera-Martinez & Atkinson 1990. **(tx)** Wood 1993:280.

Page 1143 ***gongylodes*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:172 (♂ elytra).
HOSTS: *Syzygium* sp. (corrected spelling).

Page 1143 ***gotoi*** Browne. Add:
HOSTS: *Anisoptera* sp., *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990d:98.

Page 1143 ***gracilis*** Broun. Add:
FIGURES: May 1993:210 (larval characters).
HOSTS: *Nothofagus fusca, N. solandri*.
REFERENCES: **(ds)** Spiller & Wise 1982:184. **(hb)** May 1993:98. **(tx)** May 1993:98.

Page 1144 *granulipennis* Schedl. Move to ***semigranosus*** as a synonym. Add:
SYNONYMY: Beaver 1995:201.

Page 1144 ***grumosus*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:172 (♂ elytra, declivity).

Page 1144 ***gumicus*** Roberts. Add:
FIGURES: Roberts 1986:57 (♂, ♀ declivity, ♀ pronotum).

Page 1144 ***hamaticollis*** Schedl. Add *latidens* Browne as a synonym. Add:
NOTES: The record from India needs to be confirmed (Beaver 1995).
REFERENCES: **(tx)** Beaver 1995:200.

Page 1145 ***hebetatus*** Roberts. Add:
FIGURES: Roberts 1986:53 (♂ elytral apex, ♀ pronotum).

Page 1145 ***hians*** Chapuis. Add:
DISTRIBUTION: SOUTH AMERICA: Tobago.
NOTES: Wood 1993:280 (treated in **Euplatypus** Wood).
REFERENCES: **(tx)** Wood 1993:280.

Page 1145 ***hintzi*** Schaufuss. Add:
NOTES: Wood 1993:280 (treated in **Euplatypus** Wood).
REFERENCES: **(ds)** Schedl 1970c. **(tx)** Booth, Cox, & Madge 1990:203; Wood 1993:280.

Page 1146 ***hippocrepicus*** Roberts. Add:
FIGURES: Roberts 1986:55 (♂ declivity).

Page 1146 ***hirtellus*** Schedl. Add:
HOSTS: Sapotaceae sp.
REFERENCES: **(ds)** Ohno 1990d:98.

Page 1146 ***histrix*** (Schedl). Add:
HOSTS: *Canarium* sp., *Mangifera* sp.
REFERENCES: (**ds**) Ohno 1990d:98.

Page 1146 ***hospes*** Schedl. Add:
FIGURES: Zimmerman 1992:653 (adult ♂).

Page 1147 ***impolitus*** Roberts. Add:
FIGURES: Roberts 1972:70 (♂ elytra).

Page 1148 ***incertus*** Schedl. Add:
FIGURES: Roberts 1989b:286 (♀ elytral apex).

Page 1148 ***incompertus*** Schedl. Add:
FIGURES: Zimmerman 1992:641,653 (adult ♂).
NOTES: Kent & Simpson 1992; Zimmerman 1992:641 (treated in **Austroplatypus** Browne).
REFERENCES: (**an**) Kent & Simpson 1992. (**bv**) Kent & Simpson 1992. (**tx**) Zimmerman 1992:641.

Page 1149 ***insulindicus*** Schedl. Add *suzukii* Browne as a synonym. Add:
DISTRIBUTION: ASIA: Brunei, Malaysia (Sabah).
HOSTS: *Gonystylus bancanus*, Myristicaceae sp., *Sandoricum* sp., *Xanthophyllum* sp.
REFERENCES: (**ds**) Sukartana 1989b:38. (**tx**) Beaver 1995:200.

Page 1150 ***ivagaii*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:164 (♂ elytra, pronotum).

Page 1150 ***jansoni*** Chapuis. Add:
FIGURES: Zimmerman 1992:653 (adult ♂).
HOSTS: *Gonystylus bancanus*.
REFERENCES: (**ds**) Sukartana 1989b:38.

Page 1152 *latidens* Browne. Move to ***hamaticollis*** as a synonym. Add:
SYNONYMY: Beaver 1995:200.
REFERENCES: (**ds**) Ohno 1990d:98.

Page 1152 ***lawasensis*** Browne. Add *subtruncatus* Browne as a synonym. Add:
DISTRIBUTION: ASIA: Brunei, Malaysia (Sabah).
NOTES: Wood 1993:279 (treated in **Peroplatypus** Wood).
REFERENCES: (**tx**) Beaver 1995:199; Wood 1993:279.

Page 1153 ***levannongi*** Schedl. Add:
REFERENCES: (**tx**) Serafim 1992:195.

Page 1154 ***lineellus*** Schedl. Add:
FIGURES: Zimmerman 1992:653 (adult ♂).

Page 1154 ***lingulatus*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:179 (♂ elytral apex).

Page 1154 ***longissimus*** Roberts. Add:
FIGURES: Roberts 1979:89 (♂ habitus, ♀ elytral apex).

Page 1155 ***lophopetali*** Browne. Add:
REFERENCES: (**ds**) Ohno 1990d:98.

Page 1155 ***loricatus*** (Sampson). Add:
HOSTS: *Anisoptera* sp., *Octomeles* sp., *Parartocarpus* sp.
REFERENCES: **(ds)** Ohno 1990d:98.

Page 1155 ***lucasi*** Chapuis. Add:
HOSTS: *Hevea brasiliensis*.
REFERENCES: **(ds)** Sukartana 1989b:38.

Page 1155 ***lunatipennis*** Schedl. Add:
HOSTS: *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990d:98.

Page 1155 ***lunifer*** Schedl. Add:
HOSTS: Many listed in Ohno 1990d:98.
REFERENCES: **(ds)** Ohno 1990d:98.

Page 1155 ***luniger*** Motschulsky. Add:
FIGURES: Zimmerman 1992:649 (adult ♂, ♀).
HOSTS: *Xanthophyllum* sp.
NOTES: Wood 1993:279 (treated in **Dinoplatypus** Wood).
REFERENCES: **(tx)** Wood 1993:279.

Page 1156 *caliculus* Chapuis (synonym of ***luniger*** Motschulsky). Add:
NOTES: Zimmerman 1992:649 (misspelled species name as *caliculatus*).
REFERENCES: **(ec)** Boucek 1980:75.

Page 1156 ***maniensis*** Browne. Add:
REFERENCES: **(ds)** Ohno 1990d:98.

Page 1157 ***minacior*** Schedl. Add *suzukii* Brown as a synonym. Add:
DISTRIBUTION: ASIA: Brunei, Malaysia (Sabah).
HOSTS: *Anisoptera* sp., *Dipterocarpus* sp.
REFERENCES: **(tx)** Beaver 1995:200.

Page 1158 *sulcatus* Chapuis (synonym of ***mutatus*** Chapuis). Add:
REFERENCES: **(cn)** Fiorentino & Diodato de Medina 1991; Vaccaro 1986. **(ds)** Vaccaro 1986.

Page 1159 ***nebulosus*** Roberts. Add:
FIGURES: Roberts 1970a:72 (♂ habitus, elytral apex).

Page 1159 ***negatus*** Schedl. Correct type depository to Forest Research Station, Bulolo, New Guinea. Add:
REFERENCES: **(tx)** Roberts 1989b:266.

Page 1159 ***nemorosus*** Roberts. Add:
FIGURES: Roberts 1986:55 (♂ pronotum, ♀ head).

Page 1160 ***nudiusculus*** Roberts. Add:
FIGURES: Roberts 1986:54 (♂ elytra, declivity).

Page 1160 *obscurus* Schedl. Move to ***Treptoplatypus circulicauda*** Brown as a synonym. Add:
SYNONYMY: Beaver 1995:201.
REFERENCES: **(ds)** Ohno 1990d:98.

Page 1161 ***obtusus*** Chapuis. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Oaxaca).
HOSTS: *Guatteria* sp.
NOTES: Wood 1993:279 (treated in **Platyphysus** Wood).
REFERENCES: **(tx)** Wood 1993:279.

Page 1161 ***octospinosus*** Browne. Add:
HOSTS: *Vatica* sp.
REFERENCES: **(ds)** Ohno 1990d:98.

Page 1161 ***ohnoi*** Browne. Add:
REFERENCES: **(ds)** Ohno 1990d:98.

Page 1161 ***omega*** Schedl. Add:
HOSTS: *Shorea* sp.
NOTES: Wood 1993:279 (treated in **Dinoplatypus** Wood).
REFERENCES: **(ds)** Ohno 1990d:98. **(tx)** Wood 1993:279.

Page 1161 ***omnivorus*** (Lea). Add:
FIGURES: Zimmerman 1992:645,655 (adult ♂).
REFERENCES: **(tx)** Naumann 1993:160.

Page 1162 ***orientalis*** (Strohmeyer). Add:
FIGURES: Roberts 1970b:483 (as *leonensis* and *refertus lomaensis*).
HOSTS: *Carapa procera, Parinarium excelsa.*

Page 1163 ***ovatus*** Strohmeyer. Add:
HOSTS: Many listed in Ohno 1990d:98.
REFERENCES: **(ds)** Ohno 1990d:98.

Page 1163 ***oxyurus*** Dufour. Add:
FIGURES: Pfeffer 1994b:181 (adult ♂), 1994c:298 (adult ♂), 306 (gallery).
DISTRIBUTION: EUROPE: Slovakia.
HOSTS: *Abies alba, A. nebrodensis.*
REFERENCES: **(ds)** Pfeffer 1994c:209. **(tx)** Pfeffer 1994b:181, 1994c:209.

Page 1164 ***pahangensis*** Schedl. Add:
DISTRIBUTION: ASIA: Indonesia (Sulawesi).
HOSTS: "*Meranti*".

Page 1164 ***pallidus*** Chapuis. Add:
DISTRIBUTION: OCEANIA: New Britain.
HOSTS: *Artocarpus* sp., *Combretocarpus* sp., *Gluta* sp., *Mangifera* sp., *Melanorrhoea* sp., *Palaquium* sp., *Parishia* sp., *Pseudosindora* sp.
NOTES: Wood 1993:279 (treated in **Dinoplatypus** Wood).
REFERENCES: **(ds)** Ohno 1990d:99. **(tx)** Wood 1993:279.

Page 1164 ***parallelivenius*** Roberts (corrected spelling).

Page 1164 ***parallelus*** (Fabricius). Add:
FIGURES: Booth, Cox, & Madge 1990:202 (adult); Zimmerman 1992:655 (adult ♂).
DISTRIBUTION: SOUTH AMERICA: Equador (**Isabela** in Galapagos Islands), Tobago. EUROPE: United Kingdom (CIE Map 486).

HOSTS: Many listed in Ohno 1990d:99. Also: *Afzelia* sp., *Anacordium spruceanaum, Antiaris* sp., *Brachystegia* sp., *Cecropia obtusifolia, C. peltasta, Clarisla racemosa, Enterolobium schomburgkii, Eugenia malaccensis, Hevea* sp., *Hymenolobium excelsum, Guarea guidonia, Mangifera indica, Mezilaurus itauba, Ocotea coriacea, Parkia* sp., *Pinus caribaea, Pterocarpus rohrii, Sloanea berteriana, Spondias* sp., *Terminalia* sp., *Theobroma* sp.
NOTES: Wood 1993:280 (treated in **Euplatypus** Wood).
REFERENCES: (**cn**) Hyman 1992:374; Maes 1992:13. (**ds**) Abreu 1992; Atkinson & Peck 1994:318; Booth, Cox, & Madge 1990:202; Hyman 1992:374; Ohno 1990d:99. (**ec**) Hyman 1992:374. (**hb**) Abreu 1992; Atkinson & Peck 1994:318. (**tx**) Booth, Cox, & Madge 1990:202; Naumann 1993:161; Wood 1993:280.

Page 1165 *linearis* Stephens (synonym of ***parallelus*** (Fabricius). Add:
REFERENCES: (**ds**) Peck & Kukulová-Peck 1990:1637.

Page 1168 ***patens*** Roberts. Add:
FIGURES: Roberts 1986:55 (♂ elytra).

Page 1168 ***pectinatus*** Roberts. Add:
FIGURES: Roberts 1986:54 (♂ elytra, declivity).

Page 1168 ***perbrevis*** Browne. Add:
HOSTS: *Gluta* sp., *Mangifera* sp., *Melanorrhoea* sp., *Parinarium* sp.
REFERENCES: (**ds**) Ohno 1990d:99.

Page 1169 ***petalinus*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:176 (♂ declivity).

Page 1169 ***petaloideus*** Roberts. Add:
FIGURES: Roberts & Morimoto 1987:176 (♂ declivity).

Page 1170 ***pini*** Hopkins. Add:
NOTES: Wood 1993:280 (treated in **Euplatypus** Wood).
REFERENCES: (**cn**) Maes 1992:13. (**ec**) Dajoz 1992. (**tx**) Wood 1993:280.

Page 1170 ***piniperda*** Schedl. Add:
DISTRIBUTION: ASIA: Indonesia (Sarawak).
NOTES: Wood 1993:279 (treated in **Dinoplatypus** Wood).
REFERENCES: (**tx**) Wood 1993:279.

Page 1170 *planodeclivis* Schedl. Move to ***balanocarpus*** Schedl as a synonym. Add:
SYNONYMY: Beaver 1995:199.

Page 1172 ***pseudocupulatus*** Schedl. Add:
HOSTS: Many listed in Ohno 1990d:99. Also: *Pinus merkusii*.
NOTES: Wood 1993:279 (treated in **Dinoplatypus** Wood).
REFERENCES: (**ds**) Hutacharern et al. 1988:47; Ohno 1990d:99; Sukartana 1989b:38. (**tx**) Wood 1993:279.

Page 1172 ***pseudocurtus*** Schedl. Add:
HOSTS: *Anisoptera* sp., Sapotaceae sp.
REFERENCES: (**ds**) Ohno 1990d:99.

Page 1173 ***puerulus*** (Schedl). Add:
HOSTS: *Hopea* sp.

REFERENCES: (**ds**) Ohno 1990d:100.

Page 1173 ***pulvinatus*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:176 (♂ elytral apex).

Page 1173 *pulvinatus quadricornutus* Roberts. Add:
HOSTS: *Syzygium* sp.
NOTES: Placed as synonym in Wood & Bright 1992. Recognized as subspecies by Roberts (1989a and personal communication).

Page 1174 *pumilus* Browne. Move to ***minacior*** Schedl as a synonym. Add:
SYNONYMY: Beaver 1995:200.
REFERENCES: (**ds**) Ohno 1990d:100.

Page 1174 ***quadrifissilis*** Schedl. Add:
HOSTS: *Artocarpus* sp., *Dipterocarpus* sp., *Dryobalanops* sp., *Homalium* sp., *Hydnocarpus* sp., *Parinarium* sp., *Xanthophyllum* sp.
REFERENCES: (**ds**) Ohno 1990d:100.

Page 1175 ***queenslandi*** Schedl. Add:
FIGURES: Zimmerman 1992:655 (adult ♂).

Page 1175 ***quercivorus*** Murayama. Add:
REFERENCES: (**cn**) Hijii et al. 1991. (**ec**) Hijii et al. 1991.

Page 1176 ***ramosissimus*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:168 (♀ elytral apex, pronotum).

Page 1176 ***ramulosus*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:164 (♂ elytra, declivity).

Page 1177 ***ochthocosmus*** Roberts (listed as a synonym of ***rufescens*** (Strohmeyer)). Remove from synonymy. Add:
REFERENCES: (**hb**) Beaver & Löyttyniemi 1991. (**tx**) Beaver & Löyttyniemi 1989.

Page 1176 ***runcinatus*** Roberts. Add:
FIGURES: Roberts 1986:57 (♀ declivity, pronotum; ♂ declivity).

Page 1178 ***sandakanensis*** Browne. Add:
HOSTS: *Anisoptera* sp., *Shorea* sp.
REFERENCES: (**ds**) Ohno 1990d:100.

Page 1178 ***santiriae*** Roberts. Add:
FIGURES: Roberts 1970:76 (habitus, pronotum, elytral apex).

Page 1179 ***segnis*** Chapuis. Add:
DISTRIBUTION: NORTH AMERICA: Mexico (Oaxaca).
HOSTS: *Ficus elastica, Heliocarpus appendiculatus, Pouteria neglecta.*
NOTES: Wood 1993:280 (treated in **Euplatypus** Wood).
REFERENCES: (**ds**) Noguera-Martinez & Atkinson 1990:462. (**hb**) Noguera-Martinez & Atkinson 1990:462. (**tx**) Wood 1993:280.

Page 1179 ***sellaeformis*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:168 (♂ elytra, ♀ pronotum).

Page 1179 ***semigranosus*** (Sampson). Add *granulipennis* Schedl as a synonym. Add:
FIGURES: Zimmerman 1992:657 (adult ♂).
REFERENCES: (**tx**) Beaver 1995:201.

Page 1180 ***severini*** Blandford. Add:
FIGURES: Korolyov 1989:113 (larvae).
DISTRIBUTION: EUROPE: Eastern Russia.
REFERENCES: (**an**) Korolyov 1989:111. (**ec**) Nakasima et al. 1992. (**tx**) Korolyov 1989:111.

Page 1181 ***shoreanus*** (Beeson). Add:
HOSTS: Many listed in Ohno 1990d:100.
REFERENCES: (**ds**) Ohno 1990d:100.

Page 1181 ***signatus*** Chapuis. Add:
HOSTS: *Lophopetalum* sp., *Octomeles* sp.
REFERENCES: (**ds**) Ohno 1990d:100; Sukartana 1989b:38.

Page 1181 ***simulans*** Schedl. Add:
REFERENCES: (**ds**) Pfeffer 1994c:209. (**tx**) Pfeffer 1994c:209,210.

Page 1182 ***sindorae*** Brown. Add *vagus* Brown as a synonym. Add:
DISTRIBUTION: ASIA: Brunei, Malaysia (Singapore).
HOSTS: *Cratoxylum arborescens*, Myristicaceae sp.
REFERENCES: (**tx**) Beaver 1995:201.

Page 1182 ***solidulus*** Browne. Add:
FIGURES: Zimmerman 1992:657 (adult ♂).
HOSTS: *Dipterocarpus* sp., *Shorea* sp.
REFERENCES: (**ds**) Ohno 1990d:100.

Page 1182 ***solidus*** Walker. Add:
FIGURES: Zimmermann 1992:657 (adult ♂).
DISTRIBUTION: EUROPE: Poland.
HOSTS: Many listed in Ohno 1990d:100. Also: *Gonystylus bancanus*.
NOTES: Wood 1993:279 (treated in **Treptoplatypus** Wood).
REFERENCES: (**ds**) Burakowski et al. 1992:122; Ohno 1990d:100; Sukartana 1989b:38. (**tx**) Burakowski et al. 1992:122; Wood 1993:279.

Page 1184 ***solutus*** Schedl. Add:
NOTES: Wood 1993:281 (treated in **Euplatypus** Wood).
REFERENCES: (**ds**) Tsankov 1987. (**tx**) Wood 1993:281.

Page 1184 ***spiniventris*** Schedl. Add:
HOSTS: *Macaranga* sp.
NOTES: Roberts 1989b:283 (The holotype of this species appears to be missing; it is not in CSIRO, Canberra).

Page 1184 ***spinosus*** Browne. Add:
REFERENCES: (**ds**) Ohno 1990d:100.

Page 1184 ***spinulosus montivagus*** Roberts. Add:
HOSTS: *Anthonota lamprophyla, Bosqueia angolensis, Ficus macrosperma, Strombosia grandifolia.*

NOTES: Regarded as synonym in Wood & Bright 1992; recognized as subspecies by Roberts 1970a and personal communication).

Page 1185 ***subdepressus*** (Schedl). Add:
HOSTS: Many listed in Ohno 1990d:100.
REFERENCES: **(ds)** Ohno 1990d:100.

Page 1186 ***subgranosus*** Schedl. Add:
FIGURES: Zimmerman 1992:657 (adult ♂).
HOSTS: *Atherosperma moschatum.*
REFERENCES: **(bv)** Kile et al. 1992. **(ec)** Elliott et al. 1988; Kile et al. 1992. **(hb)** Kile et al. 1992. **(tx)** Naumann 1993:161.

Page 1186 ***subgranulosa*** Browne. Add:
REFERENCES: **(ds)** Ohno 1990d:101.

Page 1187 *subtruncatus* Browne. Move to ***lawasensis*** Browne as a synonym. Add:
SYNONYMY: Beaver 1995:199.

Page 1187 ***suffodiens*** Sampson. Add:
HOSTS: *Anisoptera* sp., Annonaceae sp., *Dipterocarpus* sp., *Dyera* sp., *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990d:101.

Page 1187 *suzukii* Browne. Move to ***insulindicus*** as a synonym. Add:
SYNONYMY: Beaver 1995:200.
REFERENCES: **(ds)** Ohno 1990d:101.

Page 1188 ***terebrans*** Schedl. Add:
HOSTS: *Anisoptera* sp., *Octomeles sumatrana, Scaphium* sp., *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990d:101.

Page 1188 ***ternus*** Roberts. Add:
FIGURES: Roberts 1986:53 (♀ pronotum, ♂ elytra).

Page 1188 ***torulosus*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:179 (♂ elytra).

Page 1188 ***transformis*** Schedl. Add:
HOSTS: *Dipterocarpus* sp., *Dyera* sp.
REFERENCES: **(ds)** Ohno 1990d:101.

Page 1189 ***tristis*** Roberts. Add:
FIGURES: Roberts 1986:56 (♀ pronotum, ♂ declivity).

Page 1190 ***truncaturus*** Browne. Add:
HOSTS: *Pentacme* sp.
REFERENCES: **(ds)** Ohno 1990d:101.

Page 1190 ***tuberculosus*** Strohmeyer. Add:
FIGURES: Kent 1993; Zimmerman 1992:657 (adult ♂).
DISTRIBUTION: OCEANIA: AUSTRALIA (New South Wales).
HOSTS: *Eucalyptus cypellocarpa, E. ovata.*
REFERENCES: **(cn)** Kent 1993. **(ms)** Kent 1993.

Page 1190 ***turriformis*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:172 (♀ head & pronotum, ♂ elytra).

Page 1190 ***uncatus*** Browne. Add:
HOSTS: Many listed in Ohno 1990d:101.
REFERENCES: (**ds**) Ohno 1990d:101.

Page 1190 ***uncinatus*** Blandford. Add:
HOSTS: *Canarium* sp., *Dryobalanops* sp., *Heritiera littoralis*, *Homalium* sp., Sapotaceae sp.
NOTES: Wood 1993:279 (treated in **Dinoplatypus** Wood).
REFERENCES: (**ds**) Ohno 1990d:101. (**ec**) Boucek 1980:75. (**tx**) Wood 1993:279.

Page 1192 ***vaginervis*** Roberts. Add:
FIGURES: Roberts 1986:55 (♀ declivity).

Page 1192 *vagus* Browne. Move to ***sindorae*** Browne as a synonym. Add:
SYNONYMY: Beaver 1995:201.
REFERENCES: (**ds**) Ohno 1990d:101.

Page 1192 ***vetulus*** Schedl. Add:
HOSTS: *Canarium* sp., *Parartocarpus* sp., Sapotaceae sp., *Shorea* sp.
REFERENCES: (**ds**) Ohno 1990d:101.

Page 1193 ***vitiensis*** Roberts. Add:
FIGURES: Roberts 1977:571 (habitus, ♀ head, ♂ elytral apex).

Page 1193 ***watbrui*** Roberts. Add:
FIGURES: Roberts 1965:220 (♂ elytral apex).

Page 1193 ***watutensis*** Roberts. Add:
FIGURES: Roberts 1986:56 (♂ declivity).

Page 1193 ***westwoodi*** Chapuis. Add:
HOSTS: Many listed in Ohno 1990d:101.
REFERENCES: (**ds**) Ohno 1990d:101; Sukartana 1989b:38.

Page 1194 ***wilsoni*** Swaine. Add:
FIGURES: Anonymous 1990b:6 (adult).
NOTES: Wood 1993:279 (treated in **Treptoplatypus** Wood).
REFERENCES: (**cn**) Anonymous 1990b:6; Lindgren 1990. (**ds**) Parsons et al. 1991:56. (**ms**) Anonymous 1990b:6. (**tx**) Wood 1993:279.

Genus **Treptoplatypus** Schedl

Page 1194 ***circulicauda*** (Browne). Add *Platypus obscurus* Schedl as a synonym. Add:
DISTRIBUTION: ASIA: Brunei, Malaysia (Sabah).
HOSTS: *Dactylocladus* sp., *Gonystylus* sp.
REFERENCES: (**tx**) Beaver 1995:201.

Page 1195 ***trepanatus*** (Chapuis). Add:
REFERENCES: (**ds**) Sukartana 1989b:38.

Add species: ***bifidus*** (Schedl), with *Platypus bicaudatus* Browne as a synonym. Add:
DISTRIBUTION: ASIA: Malaysia (Sabah).

HOSTS: *Parartocarpus* sp.
NOTES: Beaver 1995:201 (moved to **Tretoplatypus** Schedl).
REFERENCES: **(tx)** Beaver 1995:201.

Genus **Crossotarsus** Chapuis

Page 1195 ***armipennis*** Lea. Add:
FIGURES: Zimmerman 1992:643 (adult ♂).

Page 1195 ***aureipilus*** Roberts. Add:
FIGURES: Roberts 1989a:92 (♂ elytral apex).

Page 1196 ***barbatus*** Chapuis. Add:
HOSTS: *Xanthophyllum* sp.
REFERENCES: **(ec)** Boucek 1980:75.

Page 1196 ***caliginosus*** Roberts. Add:
FIGURES: Roberts 1979:83 (♂ elytral apex).

Page 1197 ***corrugatus*** Roberts. Add:
FIGURES: Roberts 1989a:92 (♂ elytral apex).

Page 1198 ***externedentatus*** (Fairmaire). Add:
FIGURES: Booth, Cox, & Madge 1990:201 (adult); Zimmerman 1992:643 (adult ♂, ♀).
DISTRIBUTION: OCEANIA: Tonga (Tongatapu). See "CIE Map 492".
HOSTS: *Albizzia* sp., *Alstonia* sp., *Anisoptera* sp., *Calophyllum* sp., *Canarium* sp., *Dipterocarpus* sp., *Dracontomelium puberulum*, *Dryobalanops* sp., *Eucalyptus deglupta*, *Eugenia* sp., *Gluta* sp., *Gmelina arborea*, *Hevea brasiliensis*, *Intsia* sp., *Koompassia malaccensis*, *Mangifera* sp., *Melanorrhoea* sp., *Octomeles sumatrana*, *Parinarium* sp., *Pentacme* sp., *Planchonia* sp., *Pseudosindora* sp., Sapotaceae sp., *Sindora* sp., *Tarrietia* sp., *Toonia? sureni*. Roberts 1977b:576 lists 69 host species in Fiji.
REFERENCES: **(ds)** Beaver 1987b:65; Booth, Cox, & Madge 1990:201; Ohno 1990d:95. **(hb)** Booth, Cox, & Madge 1990:201. **(tx)** Booth, Cox, & Madge 1990:201.

Page 1199 *saundersi* Chapuis (synonym of ***externedentatus*** (Fairmaire)). Add:
REFERENCES: **(cn)** Hong et al. 1982. **(ds)** Sukartana 1989b:38.

Page 1200 ***fractus*** Sampson. Add:
HOSTS: *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990d:95.

Page 1201 ***lecontei*** Chapuis. Add:
HOSTS: *Tarrietia* sp.
REFERENCES: **(ds)** Ohno 1990d:95.

Page 1202 ***majusculus*** Sampson. Add:
HOSTS: *Gonystylus bancanus*.
REFERENCES: **(ds)** Sukartana 1989b:38.

Page 1203 ***mniszechi*** Chapuis. Add:
FIGURES: Zimmerman 1992:645 (adult ♂).

Page 1203 ***niponicus*** Blandford: Add:
REFERENCES: **(ec)** Nakasima et al. 1992:245.

Page 1203 ***nitens*** Chapuis. Add:
HOSTS: *Anisoptera* sp., *Dipterocarpus* sp., *Dryobalanops* sp., *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990d:95.

Page 1204 ***nitescens*** Schedl. Add:
FIGURES: Zimmerman 1992:645 (adult ♂, ♀).
HOSTS: *Schizomeria ovata.*

Page 1204 ***oligodontus*** Roberts. Add:
FIGURES: Roberts 1979:83 (♂ elytral apex).

Page 1204 ***paucidentatus*** Roberts. Add:
FIGURES: Roberts 1989a:92 (♂ elytral apex).

Page 1204 ***porcatus*** Roberts. Add:
FIGURES: Roberts 1989a:92 (♂ elytral apex).
NOTES: Change date from "1988" to 1989a.

Page 1205 ***rasilis*** Roberts. Add:
FIGURES: Roberts 1979:83 (♂ elytral apex).

Page 1206 ***squamulatus*** Chapuis. Add:
HOSTS: *Albizzia* sp., *Anisoptera* sp., *Antiaris* sp., *Canarium* sp., *Dipterocarpus* sp., *Dryobalanops* sp., *Gluta* sp., *Gmelina arborea, Octomeles sumatrana, Tarrietia* sp.
REFERENCES: **(ds)** Ohno 1990d:96.

Page 1207 ***subpellucidus*** Lea. Add:
FIGURES: Zimmerman 1992:647 (adult ♂).

Page 1208 ***ursus*** Schedl. Add:
HOSTS: *Shorea* sp.
REFERENCES: **(ds)** Ohno 1990d:96.

Page 1209 ***wallacei*** (Thomson). Add:
HOSTS: *Canarium* sp., *Dillenia* sp., *Dyera* sp., *Gmelina arborea, Gonystylus bancanus,* Lauraceae sp., *Sindora* sp.
REFERENCES: **(cn)** Hong et al. 1982. **(ds)** Ohno 1990d:96; Sukartana 1989b:38.

Add species: ***imitatrix*** (Schedl). From *Baiocis*. Add:
FIGURES: Roberts 1989a:92 (♂ elytra).
NOTES: Holotype not in CSIRO. Location not determined but evidently not in NHMW.
REFERENCES: **(tx)** Roberts 1989a:89.

Genus **Trachyostus** Schedl

Page 1211 **Trachyostus** Schedl. Add:
FIGURES: Epila-Otara & Triplehorn 1990:347 (aedeagus).

Page 1211 ***ghanaensis*** Schedl. Add:
HOSTS: Attacks living trees only.

Page 1212 *punctatus* Strohmeyer (synonym of ***nobilis*** (Schaufuss)). Add:
REFERENCES: (**en**) Hong et al. 1982.

Genus **Platyscapulus** Schedl

Page 1214 ***carinulatus*** (Chapuis). Add:
DISTRIBUTION: SOUTH AMERICA: Guyana.

Page 1215 ***frontalis*** (Blandford). Add:
FIGURES: Reichart 1962:335.

Genus **Baiocis** Browne

Page 1216 ***imitatrix*** Schedl. Move to **Crossotarsus**.

Page 1216 ***kuntzeni*** (Schedl). Add:
HOSTS: *Protium* sp.
REFERENCES: (**ec**) Boucek 1980:75.

Page 1217 ***nubilosus*** Roberts & Morimoto. Add:
FIGURES: Roberts & Morimoto 1987:176 (♂ elytral apex).

Page 1217 ***pernanulus*** (Schedl). Add:
FIGURES: Zimmerman 1992:643 (adult ♀).
HOSTS: *Anisoptera* sp., *Calophyllum* sp., *Dipterocarpus* sp., *Gluta* sp., *Melanorrhoea* sp., *Shorea* sp.
REFERENCES: (**ds**) Ohno 1990d:96.

Page 1217 ***unispinosus*** Roberts. Add:
FIGURES: Roberts 1986:55 (♂ elytral apex), Roberts & Morimoto 1987:176 (♂ elytral apex).
NOTES: Species name misspelled in Wood & Bright 1992.

Genus **Cylindropalpus** Strohmeyer

Page 1218 ***auricomans*** (Schaufuss). Add:
REFERENCES: (**hb**) Beaver & Löyttyniemi 1991.

Page 1218 ***caliginosus*** Roberts. Add:
NOTES: Roberts 1970a:65 (described ♀).

Genus **Triozastus** Schedl

Page 1220 ***banghaasi*** (Schaufuss). Add:
DISTRIBUTION: AFRICA: Malawi.

Genus **Mesoplatypus** Strohmeyer

Page 1221 ***calabaricus*** Roberts. Add:
FIGURES: Roberts 1965:226 (♂ elytral apex).

Page 1222 ***imparispinosus*** Roberts. Add:
FIGURES: Roberts 1972:67 (♂ elytral apex).

Page 1222 ***ventricornis*** Schedl. Add:
REFERENCES: (**hb**) Beaver & Löyttyniemi 1991.

Page 1223 ***nigeriensis*** Roberts (listed as a synonym of ***venustus*** Schedl). Remove from synonymy. Add:
FIGURES: Roberts 1964:406 (♂ elytral apex, abdomen).
NOTES: Roberts name was published in July 1964 and has priority over *venustus* Schedl, validated in January 1965.
REFERENCES: **(hb)** Beaver & Löyttyniemi 1991. **(tx)** Beaver & Löyttyniemi 1985b:115.

Genus **Doliopygus** Schedl

Page 1223 **Doliopygus** Schedl. Add:
FIGURES: Epila-Otara & Triplehorn 1990:347 (aedeagus).

Page 1223 ***aequalidentatus*** Schedl. Add:
REFERENCES: **(hb)** Beaver & Löyttyniemi 1991.

Page 1224 ***arrowi*** (Schedl). Add:
REFERENCES: **(hb)** Beaver & Löyttyniemi 1991.

Page 1224 ***bidiscoplanus*** Roberts. Add:
FIGURES: Roberts 1970b:476 (♂ elytra).

Page 1225 ***bijunctspinae*** Roberts. Add:
FIGURES: Roberts 1970b:476 (♂ elytra).

Page 1225 ***bipapillatus*** Roberts. Add:
FIGURES: Roberts 1966c:412 (♂ elytra).

Page 1225 *bulbifer* Schedl. Move to ***bulbosus*** Roberts as a synonym.

Page 1225 ***bulbosus*** Roberts (listed as a synonym of ***bulbifer*** Schedl). Remove from synonymy. Add:
NOTES: Roberts name was published in July 1964 and has priority over *bulbifer* Schedl, validated in January 1965.

Page 1227 ***conradti*** (Strohmeyer). Add:
REFERENCES: **(ec)** Boucek 1980:75.

Page 1228 ***divaricus*** (Schedl). Add:
REFERENCES: **(ec)** Boucek 1980:75.

Page 1228 ***dubius*** (Sampson). Add:
REFERENCES: **(hb)** Beaver & Löyttyniemi 1991.

Page 1229 ***erichsoni*** (Chapuis). Add:
FIGURES: Booth, Cox, & Madge 1990:201 (adult).

Page 1230 ***eximius*** Schedl. Add:
REFERENCES: **(hb)** Beaver & Löyttyniemi 1991.

Page 1231 ***integratus*** Roberts. Add:
FIGURES: Roberts 1964:412 (♂ elytral apex).

Page 1231 ***interruptus*** (Sampson). Add:
REFERENCES: **(hb)** Beaver & Löyttyniemi 1991.

Page 1232 ***megatoma*** Schedl. Add:
DISTRIBUTION: AFRICA: Equatorial Guinea.

Page 1233 ***minutissimus*** (Schedl). Add:
DISTRIBUTION: AFRICA: Nigeria.
REFERENCES: (**ds**) Medler 1980:293.

Page 1234 ***multipunctus*** Roberts. Add:
FIGURES: Roberts 1964:406 (♂ elytral apex).

Page 1234 ***nigeriensis*** Roberts. Add:
FIGURES: Roberts 1971a:284 (♂ elytral apex).

Page 1234 ***obanensis*** Roberts. Add:
FIGURES: Roberts 1964:406 (♂ elytral apex).

Page 1235 ***opifex*** (Sampson). Add:
REFERENCES: (**hb**) Beaver & Löyttyniemi 1991.

Page 1235 ***oraelatus*** Roberts. Add:
FIGURES: Roberts 1964:402 (♂ elytral apex).

Page 1235 ***perminutissimus*** (Schedl). Add:
REFERENCES: (**hb**) Beaver & Löyttyniemi 1991.

Page 1235 ***praeclarus*** (Schedl). Add:
REFERENCES: (**hb**) Beaver & Löyttyniemi 1991.

Page 1236 ***proximus*** Schedl. Add:
REFERENCES: (**hb**) Beaver & Löyttyniemi 1991.

Page 1237 ***exasperatus*** Roberts (listed as a synonym of ***rhodesianus*** (Schedl)). Remove from synonymy. Add:
REFERENCES: (**tx**) Beaver & Löyttyniemi 1985b:125.

Page 1237 ***schoutedeni*** (Sampson). Add:
REFERENCES: (**hb**) Beaver & Löyttyniemi 1991.

Page 1238 ***spatiosus*** (Schedl). Add:
REFERENCES: (**hb**) Beaver & Löyttyniemi 1991.

Page 1239 ***togatus*** (Schedl). Add:
REFERENCES: (**hb**) Beaver & Löyttyniemi 1991.

Page 1240 ***tridens*** Roberts. Add:
FIGURES: Roberts 1970a:70 (♂ elytral apex).

Page 1240 ***uncinatus*** Schedl. Add:
REFERENCES: (**hb**) Beaver & Löyttyniemi 1991.

Genus **Dendroplatypus** Browne

Page 1240 ***impar*** (Schedl). Add:
REFERENCES: (**ds**) Ohno 1990d:96.

Add Genera: **Peroplatypus** Wood 1993:272. Type species: ***Platypus truncatipennis*** Schedl, by original designation.

Dinoplatypus Wood 1993:273. Type species: ***Platypus cupulatus*** Chapuis, by original designation.

Myoplatypus Wood 1993:274. Type species: ***Bostrichus flavicornus*** Fabricius, by original designation.

Oxoplatypus Wood 1993:274. Type species: ***Scolytus quadridentatus*** Olivier, by original designation.

Platyphysus Wood 1993:274. Type species: ***Platypus obtusus*** Chapuis, by original designation.

Megaplatypus Wood 1993:275. Type species: ***Platypus dentatus*** Dalman, by original designation.

Euplatypus Wood 1993:275. Type species: ***Bostrichus parallelus*** Fabricius, by original designation.

Epiplatypus Wood 1993:275. Type species: ***Platypus desceptor*** Wood, by original designation.

Teloplatypus Wood 1993:276. Type species: ***Platypus concinnus*** Blandford, by original designation.

Incertae Cedis

***ferrarae** Kohring & Schlüter 1989:48. Holotype (sex ?); Sicily amber; Paleontological Institute, Freie Universität, Berlin.

FIGURES: Kohring & Schlüter 1989:47.

DISTRIBUTION: EUROPE: Sicily.

NOTES: Species described in non-existant "genus" ***Platypodidarum***. This name is not available, according to International Code. Species name is, however, available but generic assignment is unknown.

REFERENCES: (**tx**) Kohring & Schlüter 1989:48.

Host List for Scolytidae

The following two lists of host plants and the scolytids/platypodids attacking them is taken directly from this supplementary catalog and lists those associations not included in Wood and Bright (1992). No attempt has been made to correct the nomenclature of the host names; only misspellings that we have been able to detect have been corrected. In some cases, a scolytid or platypopid species may occur in almost all species of a host genus; these were often listed in the 1992 catalog with only generic names of host plants. In this supplementary catalog the full specific name of the host may, or may not, be listed below.

Many additional hosts are listed in Ohno 1990c and 1990d. Some of the records from those references are listed below.

A

Abies alba.
Cryphalus asperatus, C. piceae, Crypturgus cinereus, C. hispidulus, C. pusillus, Orthotomicus laricis, Pityokteines curvidens, P. vorontzowi, Pityophthorus exsculptus, Polygraphus poligraphus, Trypodendron lineatum.

Abies balsamea.
Pityokteines curvidens.

Abies borisii regis.
Cryphalus piceae, Crypturgus pusillus, Pityokteines curvidens.

Abies bornmuelleriana.
Cryphalus asperatus, C. piceae, Pityokteines curvidens, P. spinidens, Trypodendron lineatum.

Abies cephalonica.
Crypturgus pusillus, Pityokteines curvidens.

Abies cilicica.
Pityokteines curvidens, Trypodendron lineatum.

Abies concolor.
Pityophthorus morosovi.

Abies fabri.
Ambrosiodmus rubricollis.

Abies firma.
Pityokteines curvidens, Polygraphus proximus.

Abies fraseri.
Pityokteines curvidens.

Abies holophylla.
Crypturgus pusillus, Dryocoetes autographus, D. hectographus, Polygraphus proximus, Trypodendron lineatum.

Abies lasiocarpa.
Scolytus ventralis.

Abies mariesii.
Polygraphus fulvipennis.

Abies nephrolepis.
Dryocoetes hectographus, Polygraphus horyurensis, Trypodendron lineatum.

Abies nordmanniana.
Cryphalus piceae, Pityokteines curvidens, P. spinidens, P. vorontzowi, Pityophthorus pityographus, Trypodendron lineatum.

Abies numidica.
Trypodendron lineatum.

Abies pectinata.
Cryphalus asperatus, C. saltuarius, Crypturgus cinereus, C. pusillus, Dendroctonus micans, Dryocoetes autographus, Hylastes cunicularius, Hylurgops glabratus, Ips amitinus, I. typographus, Liparthrum bartschti, Orthotomicus laricis, Pityogenes bidentatus, P. chalcographus, P. quadridens, Pityophthorus lichtensteini, Polygraphus poligraphus, P. subopacus, Trypodendron lineatum, Xyleborinus saxesenii, Xylechinus pilosus, Xylosandrus germanus.

Abies pinaspo.
Cryphalus numidicus, Crypturgus mediterraneus, Trypodendron lineatum.

Abies sachalinensis.
Pityokteines curvidens.

Abies sibirica.
Cryphalus saltuarius, Crypturgus cinereus, C. hispidulus, C. pusillus, Dryocoetes autographus, D. hectographus, Hylurgops palliatus, Pityokteines curvidens, Pityophthorus micrographus, Trypodendron lineatum, Xylechinus pilosus.

Abies veitchii.
Polygraphus proximus.

Acacia decurrens.
Coptodryas eucalyptica.

Acacia dudgeoni.
Diamerus imperfectus.

Acacia glomerosa.
Chramesus minulus, C. tibialis.

Acacia pennatula.
Coptoborus pseudotenuis, Dryocoetoides capucinus, Xyleborus volvulus.

Acacia spp.
Ambrosiodmus sakoae, Hypothenemus agnatus.

Acer campestre.
Hylesinus varius, Pteleobius vittatus, Scolytus koenigi, Taphrorychus villifrons, Xyleborus dispar.

Acer hyrcanum.
Scolytus koenigi.

Acer obtusatum.
Scolytus koenigi.

Acer platanoides.
Hylesinus varius, Scolytus koenigi, S. rugulosus, Xylosandrus germanus.

Acer pseudoplatanus.
Hylesinus varius, Lymantor coryli, Taphrorychus bicolor, Trypodendron domesticum, T. signatum, Xylosandrus germanus.

Acer rubrum.
Scolytus koenigi.

Acer trautvetteri.
Scolytus koenigi.

Acer velutinum.
Scolytus koenigi.

Acer spp.
Hylesinus crenatus, Hyorrhynchus blandfordi, Liparthrum bartschti, Lymantor coryli, Xyleborus dryographus.

Actinidia deliciosa.
Xyleborinus saxesenii.

Adenanthera pavonina.
Ambrosiodmus asperatus.

Adenocarpus complicatus.
Hylastinus obscurus, Phloeotribus rhododactylus.

Adenocarpus foliolosus.
Liparthrum nigrescens.

Aesculus hippocastanum.
Xyleborinus saxesenii, Xyleborus dispar, X. dryographus.

Aesculus spp.
Scolytus intricatus.

Aextoxicon punctatum.
Gnathotrupes fimbriatus.

Agathis spp.
Ambrosiodmus lewisi, Arixyleborus granifer, Cyclorhipidion subagnatum, Eccoptopterus gracilipes, Xyleborus fallax, X. partitus.

Ailanthus altissima.
Hypoborus ficus.

Ailanthus integrifolia.
Euwallacea interjectus, E. piceus, Xyleborus amphicranoides.

Ailanthus spp.
Hylesinus varius.

Albizzia gummifera.
Microborus boops.

Albizzia spp.
Xylosandrus mancus.

Alchornea coriacea.
Scolytoplatypus permirus, Xyleborinus mitosomipennis.

Alchornea spp.
Xyleborus horridus.

Aldina heterophylla.
Xyleborus affinis, X. ferrugineus, X. volvulus.

Alnus acuminata.
Pityophthorus alni.

Alnus glutinosa.
Liparthrum mandibulare, Scolytus intricatus, S. laevis, Taphrorychus villifrons, Trypodendron signatum, Trypophloeus binodulus, Xyleborus dispar, X. pfeili, Xyleborinus alni, X. saxesenii, Xylosandrus germanus.

Alnus hirsuta.
Xyleborinus alni.

Alnus incana.
Taphrorychus bicolor, Trypodendron domesticum, Xyleborus dispar.

Alnus jorullensis.
Corthylus comatus.

Alnus platanoides.
Trypodendron signatum.

Alnus sibirica.
Ambrosiodmus rubricollis.

Alnus spp.
Pteleobius vittatus, Scolytus multistriatus.

Alstonia spp.
Cryphalus tenuis, Ozopemon regius, Xyleborus bidentatus.

Amelanchier ovalis.
Scolytus rugulosus.

Amelanchier vulgaris.
Scolytus amygdali, S. rugulosus.

Amorpha californica.
Chramesus asperatus.

Amygdalus bucharica.
Scolytus gretschkini.

Amygdalus communis.
Scolytus gretschkini, S. ratzeburgi, S. rugulosus, S. scolytus.

Anagyris foetida.
Liparthrum ginistae.

Andira inermis.
Xyleborus affinis, X. ferrugineus, X. volvulus.

Anisoptera spp.
Ambrosiodmus lewisi, A. nodulosus, Arixyleborus granifer, A. hirsutulus, Coccotrypes subcribosus, Cyrtogenius vaticae, Dryocoetoides concisus, Eccoptopterus gracilipes, Euwallacea interjectus, E. piceus, Ozopemon brownei, O. regius, O. theklae, Xyleborus abscissus, X. amplexicauda, X. cylindromorphus, X. dolosus, X. eximius, X. javanus, X. pseudopilifer, X. siclus, X. subdolosus.

Annona muricata.
Coccotrypes distinctus.

Annona spp.
Coccotrypes carpophagus.

Anocordium spruceanum.
Xyleborus affinis, X. ferrugineus.

Anogeissus leiocarpus.
Sphaerotrypes hagedorni.

Anthocephalus chinensis.
Xyleborus affinis.

Antiaris spp.
Euwallacea interjectus, E. piceus.

Apodytes dimidiata.
Lanurgus barbatus.

Apuleia molaris.
Pseudochramesus opacus.

Araucaria angustifolia.
Monarthrum brasiliensis, Xylechinosomus hirsutus, X. paranaensis.

Araucaria araucana.
Hylurgonotus tuberculatus, Xylechinosomus humilis, X. valdivianus.

Araucaria araucaria.
Hylurgonotus armaticeps, Sinophloeus porteri.

Arbutus xalapensis.
Pseudothysanoes arbuti.

Argyranthemum frutescens.
Liparthrum canum.

Armeniaca vulgaris.
Scolytus amygdali, S. kirschi, S. mali, S. ratzeburgi, S. schevyrewi.

Artemisia canariensis.
Liparthrum artemisiae.

Arthrophyllum diversifolium.
Cryphalus tenuis.

Artocarpus anisophylla.
Diamerus curvifer.

Artocarpus dadah.
Diamerus luteus.

Artocarpus diversifolium.
Cryphalus artocarpus.

Artocarpus elastica.
Cryphalus artocarpus, Diamerus luteus.

Artocarpus fraxinifolius.
Xylosandrus compactus.

Artocarpus odoratissimus.
Diamerus luteus.

Artocarpus rigida.
Diamerus curvifer.

Artocarpus scortechini.
Diamerus luteus.

Artocarpus spp.
Acanthotomicus octodentatus, A. perexiguus, Ambrosiodmus asperatus, Arixyleborus hirsutulus.

Asteriscus intermedius.
Liparthrum canum.

Atalya natalensis.
Lanurgus xylographus.

Avicennia germinans.
Trischidias minutissima.

B

Balanocarpus heimii.
Arixyleborus talauricus.

Barringtonia spp.
Cryphalus tenuis.

Betula alba.
Liparthrum mandibulare, Scolytus ratzeburgi.

Betula celtiberica.
Liparthrum mandibulare, Scolytus intricatus, S. ratzeburgi, Taphrorychus villifrons.

Betula costata.
Scolytus ratzeburgi.

Betula dahurica.
Scolytus ratzeburgi.

Betula ermanii.
Scolytus ratzeburgi.

Betula pendula.
Scolytus ratzeburgi, Trypodendron domesticum, T. signatum.

Betula platyphylla.
Scolytus ratzeburgi.

Betula platyphylla japonica.
Xyleborinus alni.

Betula pubescens.
Scolytus ratzeburgi, Trypodendron domesticum, T. signatum, Xyleborinus saxesenii, Xyleborus dispar.

Betula raddeana.
Scolytus ratzeburgi.

Betula verrucosa.
Scolytus intricatus, S. ratzeburgi, Taphrorychus bicolor, Trypodendron domesticum, T. signatum, Xyleborinus saxesenii, Xyleborus dispar, X. monographus, Xylosandrus germanus.

Betula spp.
Scolytus esuriens, Taphrorychus villifrons.

Biota orientalis.
Ambrosiodmus rubricollis.

Boehmeria ulmifolia.
Corthylus villifer.

Bombax spp.
Diamerus impar.

Bosqueia angolensis.
Polygraphus granulifer, P. tropicus, Serrastus similis.

Brachystegia longifolia.
Polygraphus granulifer.

Brachystegia spp.
Glostatus assimilis.

Bridelia tomentosa.
Webbia dipterocarpi.

Brogniartia alamosana.
Hylocurus femineus.

Broussonetia kazinoki.
Hypothenemus eruditus.

Bruguiera parviflora.
Coccotrypes fallax.

Buchanania spp.
Xyleborus dolosus.

Bursera simarubra.
Cryptocarenus seriatus, Xyleborus tumucensis.

Bussea nitida.
Rhopalopselion thompsoni.

Bussea occidentalis.
Rhopalopselion thompsoni, Scolytoplatypus eichelbaumi.

Byrsonima cotinifolia.
Xylosandrus zimmermanni.

C

Cajanus cajan.
Xyleborus affinis, X. ferrugineus, X. volvulus.

Callitris articulata.
Phloeosinus thujae.

Callitris spp.
Phloeosinus bicolor.

Calophyllum brasiliense.
Coccotrypes advena.

Calophyllum spp.
Cyclorhipidion agnatum.

Calycotome spinosa.
Phloeotribus cristatus cristatus, P. maroccanus.

Calycotome villosa.
Liparthrum genistae, Phloeotribus cristatus cristatus, P. mayeti, P. rhododactylus.

Camellia japonica.
Sphaerotrypes pila.

Camplylotropis macrocarpa.
Hypothenemus eruditus.

Canarium australasicum.
Aricerus eichhoffi.

Canarium spp.
Acanthotomicus peregrinus, A. perexiguus, Ambrosiodmus lewisi, A. minor, Arixyleborus granifer, A. puberulus, Bothrosternoides malayensis, Cyclorhipidion agnatum, C. circumcisum, C. multipunctatus, Euwallacea piceus, Hypothenemus crudiae, Ozopemon fuscicollis, Polygraphus militaris, P. primus, Scolytoplatypus hova, S. permirus, Xyleborus pseudopilifer, X. pumilus.

Caragana spp.
Scolytus schevyrewi, Trypodendron domesticum.

Carapa procera.
Polygraphus granulatus, P. granulifer.

Carapa spp.
Sphaerotrypes grandis.

Carpinus betulus.
Hylesinus varius, Scolytus carpini, S. intricatus, S. mali, S. pygmaeus, Taphrorychus bicolor, Tiarophorus scrutator, Trypodendron signatum, Xyleborus dispar, X. dryographus, Xyleborus monographus, Xylosandrus germanus.

Carpinus carpinoides.
Sueus niisimai.

Carpinus laxiflora.
Sphaerotrypes pila.

Carpinus orientalis.
Scolytus carpini, Taphrorychus bicolor, T. villifrons.

Carpinus spp.
Lymantor coryli, Scolytus ellipticus, S. multistriatus, Trypodendron signatum.

Carya cordiformis.
Scolytus multistriatus, S. quadrispinosus.

Carya glabra.
Pseudothysanoes lecontei.

Carya illinoensis.
Trischidias atoma, Xylosandrus crassiusculus.

Carya ovata.
Hylocurus bicornus, H. binodatus, Pseudothysanoes dislocatus, Scolytus multistriatus, S. quadrispinosus.

Carya spp.
Trischidias exigua.

Cassia siamea.
Cryptocarenus heveae, Serrastus similis.

Cassia spp.
Scolytoplatypus permirus.

Cassine aethiopica.
Lanurgus gracilis, L. spatulatus.

Cassine crocea.
Glostatus delicatus.

Cassine schlechteri.
Lanurgus spathulatus.

Cassipourea spp.
Scolytoplatypus hova, S. permirus.

Castanea crenata.
Cryptocurus scutulatus.

Castanea sativa.
Dryocoetes villosus, Liparthrum mandibulare, Scolytus intricatus, S. mali, S. rugulosus, Taphrorychus villifrons, Xyleborinus saxesenii, Xyleborus dispar, X. dryographus, X. monographus.

Castanea vesca.
Dryocoetes villosus, Scolytus intricatus, S. mali, Taphrorychus hirtellus, Trypodendron domesticum, Xyleborinus saxesenii, Xyleborus dispar, X. dryographus.

Castanopsis accuminatissima.
Sphaerotrypes globulus.

Castanopsis sumatrana.
Diamerus ritsemae.

Catostemma scleraphylum.
Xyleborus affinis.

Cattleya sp.
Xylosandrus compactus.

Cayaponia microdonta.
Dendrocranulus tardulus.

Cecropia mexicana.
Scolytodes cecropii.

Cecropia obtusifolia.
Scolytodes atratus, S. maurus, S. parvulus, Xyleborus ferrugineus, X. posticus, Xylosandrus morigerus.

Cecropia peltata.
Xyleborus affinis, X. ferrugineus.

Cecropia spp.
Corthylus cecropii.

Cedrela odorata.
Xyleborus affinis, X. ferrugineus, X. volvulus.

Cedrelinga catenaeformis.
Xyleborus affinis, X. ferrugineus.

Cedrus atlantica.
Crypturgus pusillus, Cryphalus numidicus, Hylastes batnensis batnensis, Orthotomicus erosus, Trypodendron lineatum.

Cedrus atlantica glauca.
Pityokteines spinidens.

Cedrus brevifolia.
Phloeosinus pfefferi, Phloeotribus spinulosus.

Cedrus libani.
Hylastes batnensis anatolicus, Orthotomicus robustus, Trypodendron lineatum.

Cedrus libanotica.
Pityokteines curvidens.

Ceiba pentandra.
Ficicis despectus, Phloeoborus rudis.

Celtis africana.
Traglostus brevisetosus.

Celtis mildbraedii.
Dactylipalpus camerunus, Rhopalopselion thompsoni, Strombophorus ericius.

Celtis mississippiensis.
Phloeotribus dentifrons.

Celtis soyauxii.
Diamerus impar.

Celtis tenuifolia.
Chramesus hicoriae, Hypothenemus eruditus, Phloeotribus dentifrons, Scolytus fagi, S. muticus, Xyleborinus saxesenii, Xylosandrus germanus.

Celtis zenkerii.
Hylesinopsis secutus, Strombophorus ericius.

Celtis spp.
Chramesus asperatus.

Cephaelis spp.
Ambrosiodmus obliquus.

Cephalotaxus fortunei.
Phloeosinus bicolor.

Cerasus avium.
Polygraphus grandiclava, Scolytus gretschkini, S. rugulosus.

Cerasus erythrocarpa.
Scolytus gretschkini,

Cerasus vulgaris.
Polygraphus grandiclava, Scolytus mali, S. ratzeburgi, S. rugulosus.

Ceratonia siliqua.
Hypothenemus bezaziani, Liparthrum curtum.

Ceriops tegal.
Coccotrypes fallax.

Cestrum nocturnum.
Trischidias atoma.

Cestrum spp.
Coptoborus pseudotenuis, C. vespatorius, Theoborus theobromae, Thysanoes fimbricornis.

Chamaecyparis lawsoniana.
Cryphalus asperatus, Phloeosinus bicolor, P. cupressi, P. thujae.

Chamaecyparis obtusa.
Scolytoplatypus mikado, Sueus niisimai.

Chamaecyparis pisifera.
Phloeosinus rudis, P. thujae.

Chamaecyparis spp.
Phloeosinus bicolor.

Chamaedorea kurwinskyana.
Coccotrypes carpophagus.

Chefflera morototoni.
Xyleborus affinis.

Chlorophora excelsa.
Diamerus impar.

Cinchona ledgeriana.
Scolytoplatypus permirus.

Cinchona succirubra.
Scolytoplatypus permirus.

Cinnamomum iners.
Acacacis trahax, Scolytoplatypus minimus, S. raja.

Cinnamomum spp.
Ambrosiodmus rubricollis, Scolytoplatypus glaber, S. pubescens.

Citrus spp.
Ficicis despectus, Theoborus ricini.

Clarisla racemosa.
Xyleborus affinis, X. ferrugineus.

Cleyera japonica.
Scolytoplatypus mikado.

Coffea arabica.
Ambrosiodmus asperatus.

Coffea robusta.
Dryocoetiops coffeae.

Coffea spp.
Cnesinus foratus, Sueus niisimai.

Combretocarpus spp.
Cyclorhipidion agnatum, Xyleborus abscissus.

Combretum spp.
Taurodemus perebeae.

Commersonia bartramia.
Hypothenemus curtipennis.

Consolida orientalis.
Thamnurgus delphinii.

Consolida regalis.
Thamnurgus delphinii.

Cordia caffra.
Lanurgus spathulatus.

Cordia spp.
Coptoborus tolimanus.

Cornus walteri.
Hypothenemus eruditus.

Coronilla emeroides.
Phloeotribus perfoliatus.

Coronilla emerus.
Phloeotribus rhododactylus.

Corylus avellana.
Hylesinus varius, Scolytus carpini, S. rugulosus, S. scolytus, Taphrorychus bicolor, T. villifrons, Tiarophorus scrutator, Trypodendron signatum, Xyleborinus alni, Xyleborus dispar.

Corylus spp.
Scolytus mali, Trypodendron signatum.

Corynocarpus laevigatus.
Coptodryas eucalyptica.

Cotinus coggygria.
Carphoborus perrisi.

Cotoneaster multiflora.
Scolytus mali, S. rugulosus.

Cotoneaster pyracantha.
Scolytus rugulosus.

Cotoneaster spp.
Lymantor aceris.

Cotostema scheraphylum.
Xyleborus ferrugineus.

Cotylelobium flavum.
Sphaerotrypes bryanti.

Crataegus melanocarpa.
Scolytus mali, S. rugulosus.

Crateagus monogya.
Phloeotribus rhododactylus.

Crataegus orientalis.
Scolytus rugulosus.

Crataegus oxyacantha.
Scolytus mali, S. rugulosus.

Crataegus spp.
Trypodendron domesticum.

Cratoxylon arborescens.
Cyclorhipidion agnatum, Liparthrum palaquius.

Cratoxylon cochinchinensis.
Hyledius vilis.

Cryptomeria japonica.
Scolytoplatypus mikado.

Cryptostegis madagascariensis.
Lanurgus elongatus.

Cunninghamia lanceolata.
Ambrosiodmus rubricollis.

Cupressus goveniana.
Phloeosinus setosus, P. swainei.

Cupressus lindleyi.
Xyleborus posticus.

Cupressus lusitanica.
Hypothenemus seriatus, Phloeosinus serratus, P. thujae.

Cupressus macrocarpa.
Phloeosinus bicolor.

Cupressus pseudosibia.
Phloeosinus thujae.

Cupressus sempervirens.
Phloeosinus bicolor, P. thujae, P. thujae serrifer.

Cupressus sempervirens pyramidalis.
Phloeosinus thujae serrifer.

Cupressus thurifera.
Phloeosinus thujae.

Cupressus torulosa.
Phloeosinus cupressi.

Cupressus spp.
Hylastes ater, Phloeotribus caucasicus.

Cydonia oblonga.
Scolytus mali,

Cydonia vulgaris.
Scolytus mali, S. rugulosus.

Cynanchum tataricum.
Cynanchophagus cornutus.

Cynometra ramiflora.
Ernocladius corpulentus.

Cyrilla racemiflora.
Hypothenemus seriatus, Xyleborus posticus.

Cytisus alpinus.
Hylastinus obscurus.

Cytisus laburnum.
Phloeotribus rhododactylus.

Cytisus nigricans.
Phloeotribus rhododactylus.

Cytisus scoparius.
Hylastinus obscurus, Phloeotribus rhododactylus

D

Dacrydium cupressinum.
Pachycotes peregrinus.

Dactylocladus stenostachys.
Cyclorhipidion agnatum, Xyleborus abscissus, X. bidentatus.

Dalbergia nigra.
Scolytus submarginatus.

Dalbergia spp.
Pseudochramesus brasiliensis.

Dalhousiea africana.
Diamerus impar.

Delonix regia.
Ambrosiodmus lecontei, Hypothenemus africanus, H. obscurus.

Delphinium cuneatum.
Tiarophorus rossicus.

Delphinium orientale.
Thamnurgus delphinii.

Dialium guianense.
Amphicranus micans, Strombophorus lukengeae, Xyleborinus intersetosus, Xyleborus X. affinis, X. discretus, X. ferrugineus, X. volvulus.

Dialium spp.
Acanthotomicus tropicus, Coptoborus pseudotenuis.

Diaporthe nigricolor.
Lymantor coryli.

Didymopanax spp.
Xylosandrus morigerus.

Diospyros kaki.
Ambrosiodmus rubricollis, Scolytoplatypus mikado.

Diospyros whyteana.
Scolytogenes grobleri, Scolytoplatypus fasciatus.

Dipterocarpus cornutus.
Webbia dipterocarpi.

Dipterocarpus crinitus.
Webbia dipterocarpi.

Dipterocarpus kunstleri.
Cryptoxyleborus simplex.

Dipterocarpus obtusifolius.
Sphaerotrypes siwalikensis.

Dipterocarpus spp.
Ambrosiodmus nodulosus, Arixyleborus granifer, A. hirsutulus, A. puberulus, Coptodryas recidens, Cryphalus cylindricus, C. laevis, Cryptoxyleborus eggersi, C. shoreae, C. subnaevus, Cyclorhipidion kelantanum, C. agnatum, C. sexspinatum, Cyrtogenius brevior, C. elongatus, Dryocoetoides punctatissimus, Eccoptopterus gracilipes, Euwallacea interjectus, E. piceus, E. sibsagaricus, Ozopemon brownei, O. regius, Taphrodasus penicillatus, Xyleborus abscissus, X. amplexicauda, X. costatomorphus, X. cylindromorphus, X. eximius, X. justus, X. macropterus, X. subdolosus, X. tunggali, Webbia dasyurus, W. orbicularis, W. pabo.

Dracaena fragrans.
Xyleborus affinis.

Dryobalanops aromatica.
Arixyleborus talauricus.

Dryobalanops oblongifolia.
Arixyleborus talauricus, Scolytoplatypus parvus, Webbia dipterocarpi.

Dryobalanops spp.
Arixyleborus hirsutulus, A. puberulus, Coccotrypes subcribosus, Coptoborus bicolor, Coptodryas confusa, C. recidens, Cryptoxyleborus subnaevus, Cyclorhipidion hastatum, C. kelantanum, C. sexspinatum, Euwallacea sibsagaricus, Ozopemon brownei, Xyleborus abscissus, X. bidentatus, X. cylindromorphus, X. dolosus, X. glabratulus, X. hatanakai, X. macropterus, X. pseudocylindricus, X. subdolosus, Webbia dasyurus, W. orbicularis, W. pabo.

Durio spp.
Cyclorhipidion agnatum.

Duschekia alnobetula.
Dryocoetes alni, Trypophloeus rybinskii.

Dyera costulata.
Dactylipalpus transversus.

Dyera spp.
Coptodryas confusa, Dryocoetoides concisus, Euwallacea bicolor, E. interjectus, Ozopemon regius, Xyleborus abscissus, X. bidentatus.

E

Echium aculeatum.
Liparthrum canum.

Ekebergia suavis.
Scolytoplatypus hova, S. permirus.

Elaeagnus angustifolia.
Scolytus jaroschewskii, S. schevyrewi.

Elaeis guineensis.
Phrixosoma psaltes.

Eleocarpus sericeus.
Scolytoplatypus permirus.

Eleodendron spp.
Lanurgus spathulatus.

Embelia incumbens.
Lanurgus minor.

Endospermum medullosum.
Euwallacea interjectus.

Entandrophragma angolense.
Polygraphus granulatus, P. granulifer.

Entandrophragma excelsum.
Polygraphus granulatus, P. granulifer.

Entandrophragma utile.
Polygraphus granulatus.

Entandrophragma spp.
Sphaerotrypes grandis.

Enterolobium schomburgkii.
Hypothenemus eruditus, Xyleborus affinis, X. ferrugineus.

Erica arborea.
Liparthrum mandibulare.

Erythrina americana.
Xyleborus posticus.

Esenbeckia pentaphylla.
Ambrosiodmus hagedorni, Hypothenemus eruditus, Xyleborinus intersetosus, Xylosandrus morigerus.

Eucalyptus camaldulensis.
Cryptocarenus heveae, C. seriatus, Hypothenemus obscurus, Xyleborinus linearicollis.

Eucalyptus denea.
Scolytopsis brasiliensis.

Eucalyptus maculata.
Hylesinopsis striatus.

Eucalyptus tereticornis.
Cryptocarenus heveae, Hypothenemus obscurus, Xyleborinus linearicollis.

Eucalyptus spp.
Cryptocarenus diadematus, Xylosandrus retusus.

Eugenia jambolana.
Scolytoplatypus hova, S. permirus.

Eugenia jambos.
Coccotrypes advena, Xyleborus volvulus.

Eugenia malaccensis.
Xyleborus affinis.

Eugenia spp.
Cryphalus tenuis, Euwallacea limatus, Lanurgus minutissimus.

Euphorbia amygdaloides.
Thamnurgus caucasicus, T. euphorbiae.

Euphorbia canariensis.
Aphanarthrum affine.

Euphorbia gerardiana.
Thamnurgus caucasicus.

Euphorbia obtusifolia.
Aphanarthrum affine.

Euphorbia regis-jubae.
Liparthrum mandibulare.

Euphorbia resinfera.
Cisurgus resiniferae, C. suturatum.

Euphorbia wulfenii.
Thamnurgus euphorbiae.

Euphorbia spp.
Liparthrum inarmatum.

Euterpe globosa.
Coccotrypes carpophagus.

Euterpe spp.
Coccotrypes robustus.

Excoecaria dallachyana.
Scolytogenes ater.

F

Fagara capensis.
Glostatus squamosus, Scolytoplatypus fasciatus, Sphaerotrypes variegatus.

Fagara spp.
Sphaerotrypes grandis.

Fagus macrophylla.
Ernoporicus fagi, Taphrorychus lenkoranus.

Fagus orientalis.
Scolytus carpini, S. intricatus, S. multistriatus, Trypodendron domesticum.

Fagus sylvatica.
Cryphalus asperatus, Dryocoetes villosus, Hylesinus toranio, H. varius, Scolytus carpini, S. intricatus, S. pygmaeus, Taphrorychus villifrons, Trypodendron domesticum, T. signatum, Xyleborinus saxesenii, Xyleborus dispar, X. dryographus, X. monographus, Xylosandrus germanus.

Fagus spp.
Hypothenemus eruditus, Lymantor coryli.

Ficus aurea.
Trischidias atoma.

Ficus capensis.
Strombophorus ericius.

Ficus carica.
Hypothenemus eruditus, H. leprieuri, Liparthrum mori, Phloeotribus rhododactylus, P. willei.

Ficus elastica.
Ambrosiodmus rusticus, Corthylus comatus, Monarthrum pennatum, Xyleborus posticus.

Ficus exasperata.
Diamerus impar.

Ficus glabrata.
Phloeotribus opimus.

Ficus insipidia.
Ambrosiodmus hagedorni, Scolytodes multistriatus, S. schwarzi.

Ficus natalensis.
Diamerus pulverulentus.

Ficus radulina.
Phloeotribus demessus.

Ficus soroceoides.
Ambrosiodmus triton.

Ficus soroceoides macrophlebia.
Scolytoplatypus hova, S. permirus.

Ficus thonningii.
Diamerus impar.

Ficus vallischoudae.
Diamerus imperfectus.

Ficus spp.
Corthylus strigilis, Liparthrum americanum, Pycnarthrum perditum, Scolytoplatypus carinatus.

Fissistigma elegans.
Sueus niisimai.

Flourensia cernua.
Chaetophloeus heterodoxus.

Foetidia obliqua.
Lymantor pygmaeus.

Forsythia ovata.
Hypothenemus eruditus.

Frangula alnus.
Lymantor aceris, L. coryli.

Frangula spp.
Scolytus rugulosus.

Fraxinus americana.
Hylesinus crenatus, H. varius.

Fraxinus angustifolia.
Hylesinus crenatus, H. toranio, H. varius, Phloeotribus scarabaeoides.

Fraxinus cariacea.
Hypothenemus eruditus.

Fraxinus chinensis.
Ambrosiodmus rubricollis.

Fraxinus excelsior.
Hylesinus crenatus, H. toranio, H. varius, H. wachtli, Phloeotribus rhododactylus, P. scarabaeoides, Pteleobius vittatus, Taphrorychus villifrons, Trypodendron domesticum, T. signatum, Xyleborinus saxesenii, Xyleborus dispar, X. monographus.

Fraxinus ornus.
Hylesinus toranio, H. varius, H. wachtl, Trypodendron signatum.

Fraxinus oxyphylla.
Hylesinus varius.

Fraxinus raibocarpa.
Hylesinus tupolevi, Phloeotribus caucasicus.

Fraxinus rotundifolia.
Hylesinus varius.

Fraxinus sieboldiana.
Hylesinus cingulatus.

Fraxinus syriaca.
Phloeotribus caucasicus, P. scarabaeoides.

Fraxinus spp.
Ernoporicus caucasicus, Phloeotribus brevicollis, Scolytoplatypus mikado, Taphrorychus lenkoranus.

G

Garcinia polyantha.
Diamerus impar.

Genipa americana.
Hypothenemus seriatus.

Genista absinthoides.
Hylastinus obscurus.

Genista florida.
Hylastinus obscurus, Phloeotribus rhododactylus.

Genista numidica.
Phloeotribus peyerimhoffi.

Genista scorpius.
Liparthrum genistae.

Genista spp.
Phloeotribus vinogradovi.

Gilbertiodendron dewevrei.
Strombophorus millettiae.

Giton hamatum.
Scolytodes minutissimus.

Gleditschia triacanthos.
Cnesinus strigicollis, Scolytus muticus.

Gmelina arborea.
Ambrosiodmus asperatus, Eccoptopterus gracilipes, Hypothenemus eruditus, Theoborus ricini, Xyleborus javanus.

Gmelina spp.
Hypothenemus dipterocarpi.

Gonolobus spp.
Araptus deyrollei, A. tabogae.

Gonystylus bancanus.
Xyleborus perforans.

Gonystylus spp.
Coptodryas nudibrevis, Euwallacea destruens, E. piceus.

Gossweilerodendron balsamiferum.
Strombophorus ericius.

Gossypium herbaceum.
Hypothenemus bezaziani.

Grevillea robusta.
Ambrosiodmus asperatus.

Grewia paniculata.
Sueus niisimai.

Guarea cedrata.
Diamerus impar.

Guarea laurentii.
Diamerus impar.

Guarea spp.
Theoborus theobromae, Xyleborus ferrugineus.

Guatteria spp.
Cnesinus beaveri, C. gracilis, Phloeotribus nanus, P. setulosus.

Guazuma ulmifolia.
Corthylus concisus.

H

Harpephyllum caffrum.
Polygraphus basutoae.

Hedera colchica.
Kissophagus hederae.

Helix helix.
Kissophagus erinacellus.

Heliocarpus appendiculatus.
Ambrosiodmus coffeiceus, Coptoborus pseudotenuis, C. tolimanus, Corthylus uniseptis, Xyleborinus intersetosus, Xyleborus discretus, X. ferrugineus, X. posticus.

Heliocarpus macrocarpus.
Pseudothysanoes furvus.

Heritiera javanica.
Scolytoplatypus parvus.

Hevea brasiliensis.
Ambrosiodmus funereus, A. obliquecaudata, Dactylipalpus transversus, Eccoptopterus spinosus, Hypothenemus eruditus, H. parvulus, H. setosus, Xyleborus perforans.

Hibiscus tiliaceus.
Hypocryphalus mangiferae, Ptilopodius pacificus.

Hippomane mancinella.
Cnemonyx ficus, C. vagabundus.

Hirtella spp.
Bothrosternus lucidus, Camptocerus niger, C. opacicollis, Cnesinus gracilis.

Homalium spp.
Euwallacea destruens.

Hopea ferrea.
Cryptoxyleborus simplex.

Hopea odorata.
Sphaerotrypes brevisetosus.

Hopea spp.
Sphaerotrypes carinatus, S. minutus, Xyleborus cylindromorphus, X. dolosus, X. macropterus, X. subdolosus.

Hydnocarpus spp.
Euwallacea piceus.

Hymenaea courbaril.
Hypothenemus seriatus.

Hymenolobium excelsum.
Xyleborus affinis, X. ferrugineus, X. volvulus.

I

Icica altissima.
Camptocerus aeneipennis.

Ilex aquifolium.
Trypodendron domesticum.

Ilex mitis.
Scolytoplatypus permirus.

Ilex opaca.
Trischidias atoma.

Inga vera.
Hypothenemus erectus, Xyleborus affinis.

Inga fagifolia.
Xyleborus affinis.

Inga spp.
Amphicranus brevipennis, Coptoborus vespatorius, Corthylus flagellifer, C. papulans, C. suturifer, Hypothenemus interstitialis, Micracis festivus, Monarthrum egenum, Theoborus ricini, Xyleborus discretus, X. ferrugineus, X. horridus, X. imbellis, X. volvulus.

Instia spp.
Euwallacea interjectus.

Ipomoea spp.
Ficicis despectus.

Irvingia malayana.
Ambrosiodmus minor, Hypothenemus eruditus.

J

Juglans nigra.
Hylesinus varius.

Juglans regia.
Hylesinus crenatus, H. toranio, H. varius, Hypothenemus eruditus, Lymantor coryli, Scolytus gretschkini, S. nitidus, Sphaerotrypes coimbatorensis, Taphrorychus bicolor, Xyleborinus saxesenii, Xyleborus dispar, X. monographus, Xylosandrus germanus.

Juniperus communis.
Cryphalus asperatus, Phloeosinus armatus, P. bicolor, P. thujae, P. thujae serrifer, Pityogenes chalcographus, P. quadridens.

Juniperus excelsa.
Phloeosinus bicolor, P. turkestanicus.

Juniperus foetidissima.
Phloeosinus bicolor.

Juniperus macrocarpa.
Phloeosinus bicolor.

Juniperus nana.
Phloeosinus thujae.

Juniperus oxycedrus.
Phloeosinus armatus, P. henschi.

Juniperus phoenicea.
Phloeosinus bicolor, P. henschi.

Juniperus polycarpa.
Phloeosinus turkestanicus.

Juniperus sabina.
Phloeosinus bicolor, P. thujae thujae, P. turkestanicus.

Juniperus semiglobosa.
Phloeosinus turkestanicus.

Juniperus seravschanica.
Phloeosinus turkestanicus.

Juniperus thalasica.
Phloeosinus turkestanicus.

Juniperus turcomanica.
Phloeosinus turkestanicus.

Juniperus turkestanica.
Phloeosinus turkestanicus.

Juniperus spp.
Cryphalus saltuarius, Xyleborus dispar.

K

Kayea spp.
Xyleborus siclus.

Khaya anthotheca.
Polygraphus granulatus, P. granulifer, Microborus boops.

Khaya grandifoliola.
Xylosandrus compactus.

Khaya ivorensis.
Polygraphus granulatus, P. granulifer.

Khaya senegalensis.
Xylosandrus compactus.

Koelreuteria paniculata.
Xyleborinus saxesenii, Xyleborus dispar.

Kokoona spp.
Cyclorhipidion agnatum, Xyleborus siclus.

Koompassia excelsa.
Acanthotomicus octodentatus, Hypothenemus eruditus.

Koompassia malaccensis.
Cyclorhipidion agnatum, Euwallacea interjectus, Ozopemon obanus, Xyleborus bidentatus.

Kunzea ericoides.
Amasa truncatus.

L

Laburnum anagyroides.
Hylastinus fankhauseri, H. obscurus.

Laburnum alpinum.
Hylastinus fankhauseri, H. obscurus.

Laburnum spp.
Liparthrum genistae, L. mandibulare, Phloeotribes hercegovinensis, P. perfoliatus, P. peyerimhoffi, P. vinogradovi.

Lagerstroemia spp.
Sphaerotrypes siwalikensis.

Larix decidua.
Cryphalus asperatus, C. intermedius, C. piceae, Crypturgus hispidulus, C. pusillus, Dendroctonus micans, Dryocoetes autographus, Hylastes angustatus, H. cunicularius, H. opacus, Hylurgops palliatus, Ips acuminatus, I. amitinus, I. cembrae, I. typographus, Orthotomicus laricis, O. suturalis, Pityogenes bidentatus, P. bistridentatus, P. chalcographus, P. quadridens, Pityokteines curvidens, P. spinidens, P. vorontzowi, Pityophthorus glabratus, P. lichtensteini, P. pityographus, Tomicus piniperda, Trypodendron lineatum, Xyleborinus saxesenii, Xylechinus pilosus.

Larix europaea.
Cryphalus asperatus, C. intermedius, C. piceae, Crypturgus hispidulus, C. pusillus, Dendroctonus micans, Dryocoetes autographus, Hylastes angustatus, H. batnensis batnensis, Hylurgops palliatus, Pityogenes bidentatus, P. chalcographus, P. quadridens, Pityophthorus glabratus, P. lichtensteini, P. pityographus, Xylechinus pilosus.

Larix gmelinii.
Crypturgus pusillus, Dryocoetes autographus, D. baikalicus, D. hectographus, Hylurgops palliatus, Ips cembrae, Orthotomicus laricis, Pityogenes chalcographus, Trypodendron lineatum.

Larix kaempferi.
Scolytus morawitzi.

Larix laricina.
Scierus annectans.

Larix leptolepis.
Ips cembrae, Pityokteines curvidens, P. spinidens, P. vorontzowi, Polygraphus horyurensis, Trypodendron lineatum.

Larix maritima.
Scolytus morawitzi.

Larix polonica.
Cryphalus intermedius.

Larix sibirica.
Crypturgus pusillus, Dryocoetes autographus, D. baikalicus, D. hectographus, Hylurgops palliatus, Ips cembrae, Orthotomicus laricis, Pityogenes chalcographus, Polygraphus proximus, Trypodendron lineatum.

Laurelia philippiana.
Gnathotrupes fimbriatus.

Laurocerus officinalis.
Scolytus mali, S. rugulosus.

Laurus nobilis.
Liparthrum nigrescens.

Lembotropis nigricans.
Hylastinus obscurus.

Leptolaena pauciflora.
Lanurgus minutissimus.

Lespedeza maximowizii.
Hypothenemus eruditus.

Leucaenia pulverulenta.
Amphicranus stenodermus, Corthylus flagellifer, Monarthrum lobatum, M. luctuosum, M. pennatum, M. robustum, Xyleborus affinis, X. posticus, X. volvulus.

Leucaenia spp.
Dryocoetoides capucinus.

Libocedrus decurrens.
Phloeosinus setosus.

Licania hypoleuca.
Xylosandrus morigerus.

Licania kunthii.
Camptocerus niger.

Licaria canela.
Xyleborus volvulus.

Licaria peckii.
Araptus aztecus.

Ligustrum lucidum.
Ambrosiodmus rubricollis.

Lindera erythrocarpa.
Scolytoplatypus mikado.

Lindera triloba.
Scolytoplatypus mikado.

Lithocarpus edulis.
Sueus niisimai.

Lithocarpus spp.
Scolytoplatypus glaber.

Litsea megacarpa.
Scolytoplatypus javanus.

Litsea polyantha.
Phloeocranus bruchoides.

Lobelia excelsa.
Pityophthorus corticalis.

Lonchocarpus capassa.
Peronophorus abhorrens.

Lonchocarpus guatemalensis.
Hypothenemus eruditus.

Lonchocarpus spp.
Scolytus torulus.

Lonicera ruprechtiaca.
Scolytus japonicus.

Lophopetalum spp.
Ambrosiodmus sarawakensis.

Luchea divaricata.
Pagiocerus punctatus.

Lygos boveyi.
Phloeotribus maroccanus, P. peyerimhoffi.

Lygos monosperma.
Liparthrum genistae.

Lygos raetam.
Liparthrum genistae.

Lygos schaerocarpi.
Liparthrum genistae.

Lygos spp.
Phloeotribus cristatus cristatus.

M

Macadamia integrifolia.
Xyleborus affinis, X. ferrugineus, X. perforans.

Macadamia spp.
Hypothenemus obscurus.

Macaranga megalophylla.
Webbia dipterocarpi.

Machaerium cirrhiferum.
Amphicranus micans, Monarthrum robustum, Xyleborinus intersetosus, Xylosandrus morigerus.

Macrolobium spp.
Ambrosiodmus natalensis.

Malus communis.
Xyleborinus saxesenii.

Malus domestica.
Hypothenemus eruditus, Xyleborinus saxesenii.

Malus pumila.
Scolytus mali, S. nitidus, S. rugulosus.

Malus sieversii.
Scolytus tadzhikistanicus.

Malus sylvestris.
Hylastes ater, Scolytus mali, S. rugulosus, Tiarophorus scrutator.

Malus spp.
Trypodendron signatum.

Mammea americana.
Coccotrypes cyperi.

Mangifera indica.
Coccotrypes cyperi, Scolytoplatypus permirus, Xyleborus affinis, X. volvulus.

Mangifera spp.
Coccotrypes longior, Cyrtogenius brevior, Hypothenemus eruditus.

Manilkara huberi.
Xyleborus affinis.

Manilkara itauba.
Xyleborus ferrugineus.

Maytenus peduncularis.
Lanurgus xylographus, Scolytoplatypus fasciatus.

Mazilaurus itauba.
Xyleborus affinis, X. volvulus.

Melicoccus bijugatus.
Cryptocarenus hevae, C. seriatus, Hypothenemus squamosus, H. eruditus.

Melicytus ramiflorus.
Coptodryas eucalyptica.

Meliosma ojdhami.
Hypothenemus eruditus.

Mespilus germanica.
Scolytus rugulosus.

Mezilaurus itauba.
Hypothenemus eruditus, Xyleborus volvulus.

Michelia spp.
Dryocoetoides concisus.

Miconia glaberrima.
Corthycyclon aztecum, Corthylocurus mexicanus, Microcorthylus vicinus, Tricolus ovicollis, T. senex.

Miconia pubescens.
Corthylus zelus, Xyleborinus gracilis.

Miconia trinerva.
Dryocoetoides capucinus, Theoborus theobromae, Tricolus difodinus, Xyleborinus gracilis, Xylosandrus morigerus.

Miconia spp.
Cnesinus electus, Corthylus simplex, Xyleborinus intersetosus.

Millettia duchesnei.
Strombophorus vittatus.

Millettia grandis.
Hylesinopsis fuscipennis.

Millettia spp.
Tiarophorus elongatus.

Morus lactea.
Diamerus pimelioides.

Morus spp.
Cryphalus exiguus.

Myristica fragrans.
Hyledius cribratus.

Myristica spp.
Hypothenemus curtipennis.

Myrocarpus frondosus.
Camptocerus inoblitus.

N

Nauclea diderrichii.
Diamerus impar.

Nectandra spp.
Araptus aztecus.

Notobuxus macowani.
Scolytoplatypus africanus, S. fasciatus.

Nuxia floribunda.
Glostatus delicatus.

O

Ochna oconnorii.
Polygraphus basutoae, Scolytoplatypus fasciatus.

Ochroma lagopus.
Ficicis despectus.

Ochroma spp.
Xyleborinus gracilis.

Ocotea cymbarum.
Xyleborus affinis, X. ferrugineus.

Ocotea cymosa.
Stenoclyptus dispar, S. tomicoides.

Ocotea guianensis.
Sternobothrus sculpturatus.

Ocotea laens.
Stenoclyptus tomicoides.

Ocotea porosa.
Pagiocerus punctatus.

Ocotea puberula.
Pagiocerus punctatus.

Octomeles spp.
Arixyleborus granifer.

Octomeles sumatrana.
Ambrosiodmus brunneipes, A. funereus, A. nodulosus, Dryocoetoides concisus, Eccoptopterus spinosus, Euwallacea destruens, E. interjectus, E. piceus, E. quadraticollis, Xyleborus abscissus, X. amphicranoides, X. dolosus, X. spinatus.

Olea africana.
Lanurgus spathulatus.

Olea capensis.
Ctonoxylon methneri, Scolytoplatypus fasciatus, Xyloctonus scolytoides.

Olea europaea.
Hylesinus varius, Phloeotribus pubifrons pubifrons, P. pubifrons guillebeani.

Olmeca recta.
Hypothenemus eruditus.

Oncideres spp.
Cryptocarenus seriatus.

Origanum officinalis.
Thamnurgus kaltenbachi.

Ormosia spp.
Xyleborus affinis, X. ferrugineus, X. volvulus.

Ostrya carpinifolia.
Scolytus carpini, S. intricatus, Trypodendron signatum.

Oxycedrus spp.
Phloeosinus bicolor.

P

Pachytrope dimepate.
Diamerus hispidus, Scolytoplatypus hova, S. permirus.

Padellus mahaleb.
Scolytus mali, S. rugulosus.

Padus avium.
Lymantor aceris aceris, L. aceris schabliovskii, Scolytus mali, S. rugulosus.

Palaquium hornei.
Hypothenemus curtipennis.

Palaquium maingayi.
Scolytoplatypus parvus.

Palaquium stellatum.
Scolytoplatypus parvus.

Palaquium spp.
Coccotrypes subcribosus, Hypothenemus curtipennis, Xyleborus dolosus.

Parartocarpus spp.
Ambrosiodmus brunneipes, Euwallacea destruens, E. interjectus, E. piceus.

Paraserianthes falcataria.
Euwallacea fornicatus.

Parasponia andersonii.
Hypothenemus curtipennis.

Parishia spp.
Acanthotomicus octodentatus, Bothinodroctonus bicinctus, Bothrosternoides malayensis, Coccotrypes longior, Cryphalus substriatus, Cyclorhipidion agnatum, Euwallacea destruens, Hypothenemus birmanus, H. insignis, Ozopemon brownei.

Parkia bicolor.
Coptoborus usagaricus.

Parthenocissus quinquefolia.
Micracis suturalis.

Pasania sundaica.
Diamerus ritsemae.

Passiflora spp.
Stegomerus mexicanus.

Peganum harmala.
Thamnurgus caucasicus.

Peganum spp.
Thamnurgus pegani.

Persea americana.
Corthylus comatus, Hypothenemus erectus, Microcorthylus lassus, M. vescus, M. vicinus, Monarthrum pennatum, Phloeocleptus caudatus, P. cristatus.

Persica vulgaris.
Diamerus hispidus, Scolytus amygdali, S. kirschi, S. mali, S. rugulosus,-S. schevyrewi, Xyleborus dispar.

Persica spp.
Scolytus rugulosus.

Petrocarya graeca.
Hypothenemus eruditus.

Petrocarya spp.
Hypothenemus eruditus.

Petteria ramentacea.
Phloeotribus cristatus cristatus.

Phoenix dactylifera.
Dactylotrypes longicollis.

Phoradendron calyculatum.
Pseudothysanoes fimbriatus.

Phoradendron falcatum.
Pseudothysanoes fimbriatus.

Phoradendron serotinum.
Pseudothysanoes phoradendri.

Phoradendron spp.
Hypothenemus californicus, Micracisella divaricata, Microcorthylus vicinus.

Phyllyrea angustifolia.
Phloeotribus scarabaeoides.

Phyllyrea latifolia.
Phloeotribus scarabaeoides.

Phyllyrea media.
Phloeotribus scarabaeoides.

Picea abies.
Carphoborus rossicus, C. teplouchovi, Cryphalus asperatus, C. saltuarius, Crypturgus cinereus, C. hispidulus, C. pusillus, Dendroctonus micans, Dryocoetes autographus, D. hectographus, Hylastes brunneus, H. cunicularius, H. plumbeus, Hylurgops glabratus, H. palliatus, Ips acuminatus, I. amitinus, I. cembrae, I. duplicatus, I. typographus, Orthotomicus laricis, O. starki, O. suturalis, Phloeotribus spinulosus, Pityogenes chalcographus, Pityophthorus exculptus, P. morosovi, P. pityographus, Polygraphus grandiclava, P. poligraphus, P. subopacus, Trypodendron laeve, T. lineatum, Xylechinus pilosus, Xylosandrus germanus.

Picea ajanensis.
Carphoborus teplouchovi.

Picea asperata.
Dendroctonus micans.

Picea breweriana.
Carphoborus intermedius, Dendroctonus micans.

Picea engelmanni.
Dendroctonus micans, Scolytus ventralis.

Picea excelsa.
Cryphalus intermedius, Crypturgus cinereus, C. hispidulus, C. pusillus, Dendroctonus micans, Dryocoetes autographus, D. hectographus, Hylastes ater, H. attenuatus, Ips acuminatus, I. cembrae, I. sexdentatus, I. typographus, Orthotomicus laricis, O. longicollis, O. proximus, O. suturalis, Pityogenes bidentatus, P. bistridentatus, P. chalcographus, P. quadridens, Pityokteines spinidens, P. vorontzowi, Pityophthorus carniolicus, P. lichtensteini, Polygraphus grandiclava, P. poligraphus, P. subopacus, Tomicus minor, Trypodendron lineatum, Xyleborinus saxesenii, Xylechinus pilosus, Xylosandrus germanus.

Picea glauca.
Dendroctonus micans, Sueus niisimai.

Picea glehnii.
Dryocoetes autographus, Hylurgops palliatus, Orthotomicus suturalis, Pityogenes chalcographus, Polygraphus proximus.

Picea jezoensis.
Crypturgus hispidulus, C. pusillus, Dryocoetes autographus, Hylastes brunneus, Hylurgops palliatus, Ips duplicatus, I. typographus, Orthotomicus laricis, O. suturalis, Phloeotribus spinulosus, Pityogenes chalcographus, Polygraphus subopacus, Trypodendron laeve, T. lineatum, Xylechinus pilosus.

Picea korsiensis.
Dendroctonus micans.

Picea macrosperma.
Dendroctonus micans.

Picea microsperma.
Polygraphus poligraphus, P. sachalinensis.

Picea obovata.
Carphoborus cholodkovski, Cryphalus asperatus, Crypturgus cinereus, C. hispidulus, C. pusillus, Dendroctonus micans, Dryocoetes autographus, D. hectographus, Hylastes cunicularius, Hylurgops palliatus, Ips acuminatus, I. duplicatus, I. typographus, Orthotomicus laricis, O. suturalis, Phloeotribus spinulosus, Pityogenes bidentatus, P. chalcographus,

Polygraphus subopacus, Trypodendron laeve, T. lineatum, Xylechinus pilosus.

Picea omorika.
Cryphalus asperatus, Crypturgus pusillus, Dendroctonus micans, Dryocoetes autographus, Hylastes ater, Hylurgops palliatus, Ips amitinus, I. typographus, Pityogenes chalcographus, Trypodendron lineatum.

Picea orientalis.
Cryphalus asperatus, Crypturgus cinereus, C. pusillus, Dendroctonus micans, Dryocoetes autographus, Hylastes angustatus, H. brunneus, H. cunicularius, Hylurgops palliatus, Ips sexdentatus, Orthotomicus laricis, O. suturalis, Pityogenes bidentatus, P. chalcographus, Pityokteines spinidens, Trypodendron lineatum.

Picea pungens.
Hylastes cunicularius, Pityogenes bidentatus.

Picea schrenkiana.
Hylastes substriatus.

Picea sitchensis.
Dendroctonus micans, Ips typographus, Pityogenes chalcographus, Scierus annectans.

Picea spinulosa.
Ips longifolia, I. stebbingi.

Pinus ayacahuite.
Hylastes gracilis.

Pinus banksiana.
Pityogenes chalcographus.

Pinus brutia.
Carphoborus pini, Crypturgus numidicus, Ips robustus, I. sexdentatus, Orthotomicus erosus, O. longicollis, Tomicus minor, T. piniperda, Xyleborus eurygraphus.

Pinus brutia brutia.
Tomicus destruens.

Pinus canariensis.
Hylastes linearis, Orthotomicus erosus, Tomicus destruens.

Pinus caribaea.
Cyrtogenius brevior, Xyleborus affinis, X. ferrugineus, X. similis.

Pinus cembra.
Crypturgus pusillus, Dendroctonus micans, Dryocoetes autographus, Hylurgops palliatus, Hylastes ater, H. brunneus, Ips amitinus, I. cembrae, I. duplicatus, I. typographus, Orthotomicus laricis, O. proximus, O. suturalis, Pityogenes bidentatus, P. bistridentatus, P. chalcographus, P. conjunctus, P. quadridens, Pityophthorus glabratus, P. henscheli, P. knoteki, P. pityographus, Polygraphus grandiclava, P. poligraphus, P. subopacus, Tomicus minor, T. piniperda, Trypodendron lineatum, Xylechinus pilosus.

Pinus contorta.
Scierus pubescens.

Pinus densata.
Polygraphus zhungdianensis.

Pinus densiflora.
Crypturgus pusillus, Hylastes attenuatus, Hylurgops glabratus, Ips acuminatus, Orthotomicus laricis, O. suturalis, Pityogenes chalcographus, Tomicus minor, T. piniperda, Xylosandrus germanus.

Pinus discolor.
Ips hoppingi.

Pinus elliottii.
Hylastes angustatus.

Pinus excelsa.
Carphoborus zhobi, Ips longifolia, Polygraphus longifolia, P. major.

Pinus griffithi.
Polygraphus verrucifrons.

Pinus halepensis.
Cryphalus numidicus, Cryptocarenus heveae, Crypturgus cinereus, C. pusillus, Hylastes attenuatus, H. cunicularis, Hylurgus ligniperda, Hypothenemus obscurus, Ips sexdentatus, Orthotomicus longicollis, Pityogenes pennidens, Tomicus destruens, T. minor, T. piniperda,

Trypodendron lineatum, Xyleborinus linearicollos, Xyleborus eurygraphus.

Pinus halepensis brutia.
Crypturgus cinereus, C. pusillus, Hylastes linearis, Hylurgus ligniperda, Trypodendron lineatum.

Pinus halepensis pithyusa.
Orthotomicus proximus.

Pinus heldreichii.
Hylastes linearis.

Pinus khasya.
Ambrosiodmus triton, Cryphalus kesiyae, Hyledius kesiyae, Ips acuminatus, I. sexdentatus, Polygraphus aterrimus, P. major, Tomicus brevipilosus, Xyleborus pinicola.

Pinus koraiensis.
Crypturgus pusillus, Dryocoetes autographus, Hylurgops glabratus, Ips acuminatus, I. sexdentatus, I. typographus, Orthotomicus laricis, O. suturalis, Pityogenes chalcographus, Polygraphus subopacus, Tomicus minor, T. piniperda.

Pinus leucodermis.
Crypturgus cinereus, C. pusillus, Hylastes brunneus, Hylurgops palliatus, Ips acuminatus, I. amitinus, I. sexdentatus, Pityogenes conjunctus, P. quadridens, Pityophthorus glabratulus, P. henscheli, Polygraphus grandiclava, Tomicus piniperda, Trypodendron lineatum.

Pinus longifolia.
Carphoborus costatus, Pityogenes scitus, Polygraphus pini.

Pinus maritima.
Crypturgus mediterraneus.

Pinus merkusii.
Ambrosiodmus rubricollis, Cyrtogenius brevior, Ips acuminatus, I. sexdentatus, Polygraphus aterrimus, Xyleborus similis, X. volvulus.

Pinus montana uncinata.
Ips acuminatus, Pityogenes trepanatus.

Pinus montana pumila.
Ips cembrae.

Pinus montana.
Cryphalus intermedius, Ips amitinus, I. cembrae, Polygraphus grandiclava, P. subopacus, Tomicus minor, T. piniperda.

Pinus montezumae.
Hylastes angustatus, Pityophthorus glabratulus.

Pinus mugo uncinata.
Crypturgus hispidulus, Pityophthorus knoteki.

Pinus mugo.
Carphoborus minimus, Crypturgus pusillus, Dendroctonus micans, Hylastes angustatus, Hylurgops palliatus, Ips acuminatus, I. amitinus, I. cembrae, Orthotomicus laricis, Pityogenes bidentatus, P. bistridentatus, P. chalcographus, P. conjunctus, P. quadridens, Pityophthorus lichtensteini, P. pityographus, Polygraphus grandiclava, P. subopacus, Tomicus minor, T. piniperda, Trypodendron lineatum.

Pinus muricata.
Hylastes ater.

Pinus nigra.
Carphoborus minimus, C. pini, Cryphalus asperatus, C. saltuarius, Crypturgus cinereus, C. numidicus, C. pusillus, Hylastes angustatus, H. ater, H. attenuatus, H. linearis, H. opacus, Hylurgus ligniperda, Ips acuminatus, I. amitinus, I. mannsfeldi, I. robustus, I. sexdentatus, Orthotomicus erosus, O. laricis, O. longicollis, O. proximus, O. suturalis, Pityogenes bidentatus, P. calcaratus, P. quadridens, P. trepanatus, Pityophthorus henscheli, P. lichtensteini, Tomicus minor, T. piniperda, Trypodendron lineatum, Xyleborinus saxesenii, Xyleborus eurygraphus.

Pinus nigra austriaca.
Cryphalus saltuarius, Hylastes batnensis batnensis, Hylurgus ligniperda, Ips acuminatus, I. amitinus, I. mansfieldi, I. sexdentatus, Orthotomicus erosus, O. longicollis, O. proximus, O. suturalis, Pityogenes trepanatus, Pityophthorus carniolicus, P. henscheli,

P. pubescens, Tomicus minor, T. piniperda, Xyleborus eurygraphus.

Pinus nigra balcanica.
Crypturgus pusillus, Hylurgops palliatus, Ips acuminatus, I. sexdentatus, Orthotomicus longicollis, Pityogenes bidentatus, P. bistridentatus, Pityophthorus balcanicus, Tomicus minor.

Pinus nigra banatica.
Hylurgops palliatus, Ips mannsfeldi, I. sexdentatus, Pityogenes balcanicus, P. bistridentatus.

Pinus nigra bosniaca.
Pityophthorus balcanicus.

Pinus nigra cevennensis.
Crypturgus pusillus, Hylastes linearis, Hylurgops palliatus, Ips acuminatus, Orthotomicus erosus, Pityogenes bidentatus, P. bistridentatus, P. trepanatus, Pityophthorus buyssoni, P. pubescens, Tomicus minor, T. piniperda, Xyleborus eurygraphus.

Pinus nigra laricio.
Carphoborus minimus, Crypturgus cinereus, C. pusillus, Hylastes angustatus, H. ater, H. attenuatus, H. opacus, Ips mannsfeldi, I. sexdentatus, Orthotomicus longicollis, Pityogenes bistridentatus, P. trepanatus, Pityophthorus buyssoni, Tomicus minor, Xyleborus eurygraphus.

Pinus nigra mauretanica.
Carphoborus bonnairei, Crypturgus numidicus, C. pusillus, Orthotomicus erosus.

Pinus nigra nigra.
Carphoborus minimus, Hylastes ater, H. attenuatus, H. brunneus, H. linearis, Hylurgops palliatus, Hylurgus ligniperda, Tomicus minor, T. piniperda.

Pinus nigra pallasiana.
Carphoborus minimus, Crypturgus cinereus, C. pusillus, Hylastes angustatus, Hylurgops palliatus, Hylurgus ligniperda, Ips acuminatus, I. mannsfeldi, I. sexdentatus, Orthotomicus erosus, O. laricis, O. longicollis, Pityogenes bistridentatus, P. porifrons, P. quadridens, Pityophthorus lichtensteini, Tomicus minor, T. piniperda, Xyleborus eurygraphus.

Pinus ochoterenai.
Hylastes gracilis.

Pinus oocarpa.
Hylocurus nodulus, H. simplex, Pityophthorus glabratulus.

Pinus patula.
Hylastes angustatus.

Pinus pentaphylla.
Hylastes attenuatus, Hylurgops glabratus, Ips acuminatus, Orthotomicus proximus, Pityogenes chalcographus, P. conjunctus, Tomicus piniperda, Xylosandrus germanus.

Pinus peuce.
Crypturgus pusillus, Hylurgops palliatus, Ips amitinus, Pityogenes chalcographus, P. conjunctus, P. quadridens, Tomicus piniperda, Trypodendron lineatum.

Pinus pinaster.
Carphoborus minimus, C. pini, Crypturgus pusillus, C. cinereus, Hylastes angustatus, H. ater, H. attenuatus, H. opacus, Hylurgops palliatus, Hylurgus ligniperda, Ips sexdentatus, Orthotomicus laricis, Pityogenes bistridentatus, P. calcaratus, P. trepanatus, Pityophthorus lichtensteini, Tomicus destruens, T. piniperda, Trypodendron lineatum, Xyleborus eurygraphus.

Pinus pinea.
Carphoborus pini, Crypturgus cinereus, C. numidicus, C. pusillus, Hylastes angustatus, H. ater, H. attenuatus, H. linearis, H. opacus, Hylurgops palliatus, Hylurgus ligniperda, Orthotomicus erosus, Pityogenes calcaratus, Tomicus piniperda, Xyleborus eurygraphus.

Pinus pumila.
Cryphalus asperatus, Crypturgus pusillus, Hylastes angustatus, H. ater, Hylurgops glabratus, Ips acuminatus, I. cembrae, Orthotomicus suturalis, Pityogenes bidentatus, P. chalcographus,

P. conjunctus, Pityophthorus glabratus, Polygraphus grandiclava, P. subopacus, Xylechinus pilosus.

Pinus pungens.
Dendroctonus micans.

Pinus radiata.
Crypturgus mediterraneus, C. pusillus, Hylastes angustatus, H. ater, H. attenuatus, Hylurgops palliatus, Hylurgus ligniperda, Ips paraconfusus, I. sexdentatus, Orthotomicus erosus, O. laricis, Pityogenes trepanatus, Tomicus minor, T. piniperda, Xyleborinus saxesenii, Xyleborus eurygraphus.

Pinus remorata.
Ips hoppingi.

Pinus rotundata.
Crypturgus cinereus, C. pusillus, Dryocoetes autographus, Hylastes angustatus, H. brunneus, H. opacus, Hylurgops palliatus, Ips acuminatus, I. amitinus, Pityogenes bidentatus, P. chalcographus, P. conjunctus, P. quadridens, Pityophthorus knoteki, P. pityographus, Tomicus minor.

Pinus roxburghii.
Carphoborus zhobi, Polygraphus pini, Scolytus nitidus.

Pinus sibirica.
Cryphalus saltuarius, Crypturgus pusillus, Dryocoetes autographus, Hylurgops glabratus, H. palliatus, Ips acuminatus, I. duplicatus, I. sexdentatus, I. typographus, Orthotomicus laricis, O. suturalis, Pityogenes bidentatus, P. chalcographus, P. conjunctus, Pityophthorus lichtensteini, Trypodendron lineatum.

Pinus smithiana.
Polygraphus pini.

Pinus strobus.
Cryphalus asperatus, C. saltuarius, Crypturgus cinereus, C. pusillus, Dryocoetes autographus, Hylastes brunneus, H. linearis, Hylurgops palliatus, Hylurgus ligniperda, Orthotomicus laricis, O. suturalis, Pityogenes bidentatus, P. chalcographus, P. quadridens, Pityokteines curvidens, Pityophthorus lichtensteini, P. pityographus, Polygraphus grandiclava, P. poligraphus, P. subopacus, Tomicus minor, T. piniperda, Trypodendron lineatum, Xylosandrus germanus.

Pinus sylvestris.
Carphoborus minimus, Cryphalus asperatus, C. intermedius, C. piceae, C. saltuarius, Crypturgus cinereus, C. hispidulus, C. pusillus, Dendroctonus micans, Dryocoetes autographus, batnensis batnensis, H.linearis, H. opacus, Hylurgops palliatus, Hylurgus ligniperda, Ips acuminatus, I. amitinus, I. cembrae, I. duplicatus, I. sexdentatus, I. typographus, Orthotomicus erosus, O. laricis, O. longicollis, O. proximus, O. suturalis, Pityogenes bidentatus, P. bistridentatus, P. chalcographus, P. quadridens, Pityokteines curvidens, P. spinidens, Pityophthorus exsculptus, P. pityographus, Polygraphus grandiclava, P. poligraphus, P. subopacus, Taphrorychus villifrons, Tomicus minor, T. piniperda, Trypodendron laeve, T. lineatum, Xyleborinus saxesenii, Xyleborus dispar, X. eurygraphus.

Pinus thunbergii.
Cyrtogenius brevior, Euwallacea validus, Hylurgops glabratus, H. interstitialis, Orthotomicus angulatus, O. suturalis, Tomicus minor, T. piniperda.

Pinus torreyana.
Ips paraconfusus.

Pinus uncinata.
Hylurgops palliatus, Pityogenes trepanatus.

Pinus wallichiana.
Carphoborus costatus, Ips longifolia, I. stebbingi.

Pinus yunnamensis.
Polygraphus squameus.

Pinus spp.
Hylastes cunicularis, Polygraphus formosanus.

Piptadenia pervillei.
Xyleborinus mitosomipennis.

Piptadenia spp.
Diamerus impar.

Pistacia atlantica.
Carphoborus perrisi.

Pistacia lentiscus.
Carphoborus perrisi.

Pistacia mutica.
Carphoborus perrisi, Chaetoptelius vestitus.

Pistacia terebinthus.
Carphoborus perrisi.

Pistacia vera.
Carphoborus perrisi.

Pittosporum crassifolium.
Chaetoptelius mundulus.

Pittosporum eugenioides.
Chaetoptelius mundulus.

Pittosporum tenuifolium.
Chaetoptelius mundulus.

Planchonella linggensis.
Hypothenemus curtipennis.

Platanus occidentalis.
Xyleborus dispar.

Platanus orientalis.
Xyleborus dispar.

Plathycladus orientalis.
Phloeosinus thujae.

Podocarpus falcatus.
Lanurgus bicolor, L. podocarpi.

Podocarpus latifolius.
Lanurgus podocarpi, Traglostus brevisetosus.

Podocarpus macrophylla.
Scolytoplatypus mikado.

Podocarpus spp.
Hemicryphalus minutus, H. podocarpi, Hyledius brunneus.

Polyalthia jenkensii.
Sueus niisimai.

Pometia spp.
Euwallacea interjectus, Xyleborus pseudopilifer.

Populus alba.
Scolytus intricatus, Trypophloeus binodulus, T. tremulae, Xyleborus cryptographus.

Populus balsamifera.
Xyleborus pfeili.

Populus canadensis.
Trypophloeus binodulus, T. rybinskii.

Populus nigra.
Trypophloeus binodulus, T. granulatus, T. tremulae, T. rybinskii, Xyleborinus saxesenii, Xyleborus cryptographus.

Populus pyramidalis.
Cryphalus asperatus, Xyleborinus saxesenii.

Populus tremula.
Cryphalus asperatus, Dryocoetes alni, Scolytus intricatus, S. multistriatus, Taphrorychus bicolor, Trypodendron lineatum, Trypophloeus binodulus, Xyleborus cryptographus, X. dispar.

Populus spp.
Ambrosiodmus rubricollis, Hylesinus crenatus, Liparthrum bartschti, Scolytus multistriatus, Trypophloeus grandis.

Poupartia caffra.
Ambrosiodmus sakoae.

Pouteria multiflora.
Coccotrypes advena, C. cyperi.

Pouteria neglecta.
Hypothenemus dolosus, H. erectus.

Pouteria sapota.
Hypothenemus erectus, Xylosandrus morigerus.

Pouteria spp.
Taurodemus perebeae.

Prioria capaifera.
Coccotrypes cyperi.

Protium decandrum.
Camptocerus aeneipennis.

Protium scaber.
Phloeoborus scaber.

Protium tennifolium.
Camptocerus aeneipennis.

Protium spp.
Amphicranus micans, Bothrosternus lucidus, Camptocerus aterrimus, C. auricomis, C. opacicollis, Cnesinus gracilis.

Protium spp. copal.
Amphicranus micans, Phloeoborus asper.

Prunus americana.
Scolytus kirschi, S. scolytus.

Prunus amygdalis.
Scolytus rugulosus, S. scolytus.

Prunus angustifolia.
Scolytus rugulosus.

Prunus armeniaca.
Scolytus amygdali, S. kirschi, S. mali, S. pygmaeus, S. scolytus, Trypodendron signatum, Xyleborus dispar.

Prunus avium.
Polygraphus poligraphus, Scolytus ensifer, S. kirschi, S. mali, S. multistriatus, S. rugulosus, Taphrorychus villifrons, Trypodendron signatum, Xyleborinus saxesenii, Xyleborus dispar, X. monographus, Xylosandrus germanus.

Prunus bucharica.
Scolytus rugulosus.

Prunus cerasa.
Scolytus mali, S. rugulosus, Trypodendron signatum, Xyleborinus saxesenii, Xyleborus dispar, Xylosandrus germanus.

Prunus cerasifera.
Scolytus gretschkini.

Prunus davidiana.
Ambrosiodmus rubricollis.

Prunus domestica.
Polygraphus grandiclava, Scolytus kirschi, S. mali, S. multistriatus, S. rugulosus, Xyleborinus saxesenii, Xyleborus dispar.

Prunus donarium.
Sueus niisimai.

Prunus insitiata.
Scolytus mali, S. rugulosus, Xyleborinus saxesenii, Xyleborus dispar.

Prunus insititia syriaca.
Xyleborinus saxesenii.

Prunus laurocerasus.
Liparthrum mandibulare, Scolytus mali, S. rugulosus.

Prunus mahaleb.
Scolytus mali, S. rugulosus.

Prunus mume.
Scolytus ellipticus.

Prunus padus.
Lymantor aceris, Scolytus mali, S. rugulosus, Xyleborinus saxesenii, Xyleborus dispar.

Prunus persica.
Hypothenemus eruditus, Polygraphus grandiclava, Scolytus amygdali, S. mali, S. rugulosus, Taphrorychus villifrons, Xyleborinus saxesenii, Xyleborus dispar.

Prunus prostrate.
Scolytus rugulosus.

Prunus sellowii.
Scolytopsis brasiliensis.

Prunus serotina.
Scolytus rugulosus.

Prunus serotina capuli.
Phloeotribus pruni.

Prunus serrulata.
Xyleborinus saxesenii.

Prunus spinosa.
Scolytus mali, S. rugulosus, Xyleborinus saxesenii.

Prunus spp.
Hyorrhynchus blandfordi, Lymantor coryli, Scolytus frontalis, S. multistriatus, S. ratzeburgi, Trypodendron signatum.

Pseudoolmedia laevigata.
Phloeotribus nanus, P. pilula, P. setulosus.

Pseudoolmedia spuria.
Phloeotribus maurus, P. setulosus.

Pseudopanax arboreus.
Dendrotrupes costiceps, D. vestitus.

Pseudopanax crassifolius.
Dendrotrupes costiceps.

Pseudopanax lessonii.
Dendrotrupes costiceps, D. vestitus.

Pseudopanax simplex.
Dendrotrupes costiceps.

Pseudotsuga menziesii.
Gnathotrichus materiarius, Ips cembrae, I. sexdentatus, Orthotomicus erosus, Pityogenes bidentatus, P. calcaratus, P. chalcographus, P. quadridens, Pityokteines curvidens, P. vorontzowi, Pityophthorus carniolicus, P. pityographus, Scolytus ventralis, Trypodendron lineatum.

Pseudotsuga spp.
Hylastes ater, H. cunicularius, Ips acuminatus, Pityophthorus carniolicus.

Psidium guajava.
Hypothenemus curtipennis, H. eruditus, H. setosus.

Psychotria spp.
Scolytoplatypus permirus.

Pterocarpus macrocarpus.
Coccotrypes fallax.

Pterocarpus rhoifolia
Scolytus esuriens.

Pterocarya stenoptera.
Sphaerotrypes coimbatorensis.

Pterocymbium spp.
Dactylipalpus transversus.

Pterodon pubescens.
Cnesinus gracilis.

Pterygota horsfieldii.
Euwallacea interjectus, Xyleborus amphicranoides.

Pygeum spp.
Sphaerotrypes grandis.

Pyracantha coccinea.
Scolytus mali.

Pyrus communis.
Scolytus mali, S. multistriatus, S. rugulosus, Xyleborinus saxesenii, Xyleborus dispar.

Pyrus malus.
Hylesinus varius, Scolytus mali, S. rugulosus, Trypodendron domesticum, T. signatum, Xyleborinus saxesenii, Xyleborus dispar.

Pyrus pyraster.
Taphrorychus villifrons.

Pyrus spp.
Lymantor coryli, Scolytus laevis, Trypodendron signatum.

Q

Quararibea spp.
Ambrosiodmus hagedorni, Hypothenemus eruditus, Taurodemus perebeae, Xylosandrus morigerus.

Quercus acutissima.
Scolytoplatypus mikado.

Quercus alba.
Pseudothysanoes lecontei.

Quercus aliena.
Scolytoplatypus mikado.

Quercus canariensis.
Scolytus intricatus, Taphrorychus villifrons, Xyleborus monographus.

Quercus castaneifolia.
Scolytus intricatus, Taphrorychus lenkoranus, T. villifrons.

Quercus castaneifolia incana.
Scolytus intricatus, Taphrorychus villifrons, Tiarophorus scrutator, Xyleborus dryographus, X. monographus.

Quercus cerris.
Scolytus intricatus, Trypodendron signatum, Xyleborus dryographus, X. monographus.

Quercus coccifera.
Dryocoetes villosus, Scolytus intricatus, Xyleborus monographus.

Quercus frainetto.
Dryocoetes villosus, Scolytus intricatus, Taphrorychus hirtellus, T. villifrons.

Quercus gilva.
Phloeosinus perlatus.

Quercus ilex.
Dryocoetes villosus, Scolytus intricatus, Taphrorychus villifrons, Tiarophorus scrutator, Xyleborus dryographus, X. monographus.

Quercus laurina.
Amphicranus filliformis, Micracis amplinus, Monarthrum cordicticum, M. morsum, M. pennatum, Pseudothysanoes querneus.

Quercus lusitanica.
Scolytus intricatus, Taphrorychus villifrons, Xyleborus monographus.

Quercus pedunculata.
Dryocoetes autographus, D. villosus, Hylesinus crenatus, H. varius, Scolytus carpini, S. intricatus, Trypodendron domesticum, T. signatum, Xyleborinus saxesenii, Xyleborus dispar, X. dryographus, X. monographus.

Quercus petraea.
Dryocoetes villosus, Scolytus carpini, S. intricatus, Taphrorychus bicolor, Trypodendron domesticum, T. signatum, Xylographus dryographus, X. monographus.

Quercus pubescens.
Scolytus carpini, S. intricatus, Xyleborus dryographus, X. monographus.

Quercus pyrenaica.
Taphrorychus villifrons, Trypodendron domesticum, Xyleborinus saxesenii, Xyleborus monographus.

Quercus robur.
Dryocoetes villosus, Hylesinus varius, Hypothenemus eruditus, Liparthrum mandibulare, Scolytus carpini, S. intricatus, Taphrorychus bicolor, Trypodendron domesticum, T. signatum, Xyleborinus alni, X. saxesenii, Xyleborus dryographus, X. monographus.

Quercus rubra.
Xyleborinus saxesenii, Xyleborus dispar, X. monographus, X. obesus, Xylosandrus germanus.

Quercus sessiliflora.
Scolytus intricatus, Taphrorychus bicolor, T. hirtellus, Trypodendron signatum, Xyleborinus alni, X. saxesenii, Xyleborus dispar, X. dryographus, X. monographus, Xylosandrus germanus.

Quercus sieboldiana.
Sueus niisimai.

Quercus stenophylla.
Scolytoplatypus mikado, Sphaerotrypes pila.

Quercus suber.
Taphrorychus villifrons, Xyleborus eurygraphus, X. monographus.

Quercus variabilis.
Scolytoplatypus mikado.

Quercus spp.
Ambrosiodmus coffeiceus, A. rugicollis, A. rusticus, Amphicranus stenodermus, Araptus aztecus, Chramesus asperatus, Dryocoetes villosus, Hylesinus toranio, Monarthrum tetradontium, M. xalapensis, Scolytoplatypus glaber, Scolytus frontalis, Taphrorychus bicolor, T. lenkoranus, Xyleborinus gracilis, Xyleborus ferrugineus.

R

Rapanea melanophloeus.
Lanurgus bicolor.

Ravensara spp.
Polygraphus amoenus.

Rhamnus alaternus.
Phloeotribus scarabaeoides, Scolytus multistriatus.

Rhamnus capraefolia.
Scolytus dimidiatus.

Rhamnus cathartica.
Lymantor aceris, Scolytus rugulosus, Xyleborus dispar.

Rhamnus frangula.
Lymantor aceris, Scolytus rugulosus, Xyleborus dispar.

Rhamnus spp.
Chramesus asperatus.

Rheedia edulis.
Scolytodes erineophilus.

Rheedia spp.
Xyleborus affinis, X. ferrugineus.

Rhododendron spp.
Hemicryphalus squamosus, Hyorrhynchus flavopannus, Trischidias atoma.

Rhus cotinus.
Carphoborus perrisi.

Rhus lancea.
Polygraphus natalensis.

Rhus legatii.
Polygraphus natalensis.

Rhus radicans.
Hypothenemus eruditus.

Ricinus communis.
Hypothenemus crudiae, H. eruditus.

Robinia pseudoacacia.
Hylesinus varius, Trypodendron signatum, Xyleborus dispar, Xylosandrus germanus.

Robinia spp.
Hylesinus toranio.

Robinsonella mirandae.
Taurodemus perebeae.

Rosa spp.
Corthylus sentus, Liparthrum curtum, L. mandibulare.

Rubus spp.
Liparthrum mandibulare.

S

Sabal palmetto.
Coccotrypes distinctus.

Salix alba.
Xyleborinus alni.

Salix caprea.
Trypodendron domesticum, Trypophloeus rybinskii.

Salix cinerea.
Taphrorychus villifrons, Xyleborinus saxesenii.

Salix eleagnos.
Trypophloeus rybinskii.

Salix fragilis.
Cryphalus asperatus, Trypophloeus rybinskii.

Salix purpurea.
Trypophloeus rybinskii.

Salix spp.
Lymantor coryli, Scolytus intricatus, Trypodendron domesticum, Trypophloeus granulatus, T. rybinskii.

Samanea saman.
Ptilopodius pacificus.

Sambucus nigra.
Xyleborinus saxesenii, Xyleborus dispar.

Sandoricum spp.
Cyclorhipidion sexspinatum.

Sarothamnus scoparius.
Hylastinus obscurus, Phloeotribus cristatus cristatus.

Sarothamnus vulgaris.
Phloeotribus rhododactylus.

Sassafras albidum.
Pityophthorus lautus.

Scaphium spp.
Euwallacea interjectus, Scolytus nevermanni, Xyleborus amphicranoides, X. bidentatus, X. pseudopilifer.

Schefflera morototoni.
Xyleborus ferrugineus.

Schima superba.
Ambrosiodmus rubricollis, Hyorrhynchus ebianensis.

Schizolobium parahybum.
Xyleborinus intersetosus, Xyleborus discretus, X. volvulus, Xylosandrus morigerus.

Schoutenia accrescens.
Sueus niisimai.

Securinega suffructicosa.
Hypothenemus eruditus.

Senna spp.
Ambrosiodmus hagedorni, A. obliquus.

Sequoia gigantea.
Phloeosinus bicolor, P. thujae.

Serjania spp.
Cnesinus electus, Cryptocarenus seriatus.

Seseli tortuosum.
Cisurgus seselii.

Seyara spp.
Bothinodroctonus bicinctus.

Shorea asiamensis.
Polygraphus major.

Shorea floribunda.
Sphaerotrypes siwalikensis.

Shorea gysbertsiana.
Arixyleborus talauricus, Cryptoxyleborus simplex, Scolytoplatypus parvus, Webbia dipterocarpi.

Shorea leprosula.
Ambrosiodmus asperatus, Arixyleborus talauricus, Diamerus ritsemae, Sphaerotrypes carinatus, Webbia dipterocarpi.

Shorea macroptera.
Webbia dipterocarpi.

Shorea obtusa.
Polygraphus major, Sphaerotrypes siwalikensis.

Shorea ovalis.
Webbia dipterocarpi.

Shorea ovata.
Cryptoxyleborus simplex.

Shorea parvifolia.
Webbia dipterocarpi.

Shorea robusta.
Hypocryphalus mangiferae.

Shorea sericeiflora.
Webbia dipterocarpi.

Shorea siamensis.
Sphaerotrypes siwalikensis.

Shorea spp.
Ambrosiodmus nodulosus, Arixyleborus hirsutulus, A. mediosectus, A. puberulus, A. rugosipes, A. talauricus, Coccotrypes rhizophorae, C. taprobanus, C. variabilis, Coptoborus bicolor, C. longispinis, Cryptoxyleborus major, Cyclorhipidion hastatum, Dryocoetoides punctatissimus, Euwallacea piceus, E. sibsagaricus, Hypothenemus birmanus, H. dipterocarpi, H. eruditus, Ozopemon brownei, O. theklae, Polygraphus vexator, Sphaerotrypes moseri, Taphrodasus divisus, T. penicillatus, Webbia orbicularis, Xyleborus costatomorphus, X. hatanakai, X. justus, X. subdentatus, X. subdolosus, Xylosandrus morigerus, X. ursulus.

Sindora siamensis.
Hypothenemus eruditus.

Sindora spp.
Xyleborus bidentatus, X. dolosus, X. siclus.

Siparuna guianensis.
Cnesinus beaveri.

Siparuna nicaraguensis.
Monarthrum bidentatus.

Sloanea berteriana.
Coccotrypes advena, C. cyperi, Xyleborus affinis, X. ferrugineus, X. volvulus.

Sloetia elongata.
Ficicis despectus, Hypocryphalus perminimus.

Sophora japonica.
Ambrosiodmus rubricollis.

Sorbus aria.
Scolytus mail, S. rugulosus, Trypodendron domesticum.

Sorbus aucuparia.
Scolytus mali, S. rugulosus, Trypodendron domesticum, T. signatum.

Sorbus intermedia.
Scolytus mali.

Sorbus kamtschatkensis.
Polygraphus nigrielytris.

Sorbus sambucifolia.
Polygraphus nigrielytris.

Sorbus terminalis.
Xyleborus dispar.

Sorbus torminalis.
Scolytus mali, S. rugulosus, Trypodendron signatum, Xyleborinus saxesenii, Xyleborus dispar.

Sorbus spp.
Scolytus intricatus.

Sorindeia spp.
Polygraphus granulifer.

Sorocea illicifolia.
Phloeotribus setulosus.

Spartium junceum.
Phloeotribus cristatus cristatus, P. hercegovinensis, P. mayeti, P. peyerimhoffi.

Spartocystus supranubius.
Liparthrum nigrescens.

Spathodea campanulata.
Xyleborus affinis, X. eurygraphus, X. ferrugineus.

Spondias radlkoferi.
Corthylus villus, Xyleborinus intersetosus.

Stachys officinalis.
Thamnurgus kaltenbachi.

Staudtia stipitata.
Diamerus impar.

Sterculia macrophylla.
Ficicis javanus.

Sterculia rhinopetala.
Premnobius ambitiosus.

Struthanthus spp.
Cnesinus gracilis, Hypothenemus interstitialis, Micracisella divaricata, Pseudothysanoes tenellus.

Styrax japonica.
Sueus niisimai.

Styrax obassia.
Xylosandrus germanus.

Styrax officinalis.
Hypoborus ficus.

Swietenia macrophylla.
Scolytus guyanaensis, Sueus niisimai, Xyleborus volvulus, Xylosandrus compactus.

Swintonia floribunda.
Hypocrvphalus mangiferae.

Symphonia globulifera.
Coptoborus usagaricus.

Symphonia spp.
Xyleborinus mitosomipennis.

Symplocos theaefolia.
Scolytoplatypus pubescens.

Syringa vulgaris.
Hylesinus toranio, H. varius, Phloeotribus scarabaeoides.

T

Tamarix spp.
Scolytus jaroschewskii.

Tapirira spp.
Xyleborus volvulus.

Tarrietia spp.
Cyclorhipidion agnatum, C. sexspinatum.

Taxodium distichum.
Phloeosinus bicolor.

Taxodium obregon.
Phloeosinus tacubayae.

Taxus baccata.
Scolytus rugulosus.

Tectona grandis.
Dactylipalpus transversus.

Teline maderensis.
Liparthrum semidegener.

Terminalia amazonica.
Scolytopsis puncticollis, Xyleborus morigerus.

Terminalia catappa.
Hypothenemus obscurus.

Terminalia superba.
Dactylipalpus camerunus.

Terminalia tomentosa.
Sphaerotrypes coimbatorensis.

Terminalia spp.
Acanthotomicus peregrinus, Bothrosternoides malayensis, Hypocryphalus perminimus, Scolytoplatypus permirus, Taurodemus sharpi, Xyleborus pseudopilifer.

Ternstroemia spp.
Diapus elongatus.

Tetraclinus articulata.
Phloeosinus bicolor.

Teucrium scorodonia.
Thamnurgus delphinii.

Theobroma cacao.
Hypothenemus curtipennis.

Thujae occidentalis.
Phloeosinus armatus, P. bicolor, P. thujae, Xyleborus dispar.

Thujae orientalis.
Phloeosinus armatus, P. bicolor, P. rudis, P. thujae, Xyleborus dispar.

Thujae plicata.
Phloeosinus thujae, P. vandykei.

Thujae standishii.
Phloeosinus rudis.

Thujae spp.
Cryphalus piceae.

Thujopsis dolobrata.
Phloeosinus bicolor, P. thujae.

Tilia argentia.
Ernoporus tiliae.

Tilia cordata.
Ernoporicus caucasicus.

Tilia grandifolia.
Ernoporus tiliae.

Tilia parvifolia.
Trypodendron signatum, Xyleborus dispar.

Tilia platyphyllos.
Ernoporicus caucasicus, Ernoporus tiliae.

Tilia rubra.
Ernoporus tiliae.

Tilia tomentosa.
Ernoporus tiliae, Scolytus rugulosus.

Tilia spp.
Liparthrum bartschti, Scolytus esuriens, Xyleborus dryographus.

Tithonia spp.
Hypothenemus interstitialis, Pityophthorus atomus, P. hylocuroides.

Toonia sureni.
Xylosandrus compactus.

Toonia spp.
Arixyleborus mediosectus.

Toxicodendron radicans.
Pityophthorus crinalis, P. lautus, Trischidias atoma.

Trema micrantha.
Ambrosiodmus hagedorni, A. obliquus, Taurodemus sharpi.

Trema orientalis.
Scolytoplatypus hova, S. permirus.

Trichadenia philippinensis.
Euwallacea interjectus.

Trichilia spp.
Rhopalopselion thompsoni, Strombophorus ericius.

Tricocodendron spp.
Scolytoplatypus hova.

Trifolium hybridum.
Hylastinus obscurus.

Trifolium medium.
Hylastinus obscurus.

Trifolium spp.
Hylastinus obscurus.

Tsuga canadensis.
Pityophthorus pityographus, Trypodendron lineatum, Xyleborinus saxesenii.

Tsuga heterophylla.
Phloeosinus thujae.

Tsuga mertensiana.
Scolytus ventralis.

U

Ulmus americana.
Micracis suturalis, Scolytus scolytus, Trischidias atoma.

Ulmus campestris.
Lymantor coryli, Scolytus ensifer, S. kirschi, S. laevis, S. mali, S. multistriatus, S. pygmaeus, S. scolytus, Xyleborus dispar.

Ulmus carpinifolia.
Scolytus eichhoffi, S. kirschi, S. multistriatus, S. scolytus.

Ulmus davidiana japonica.
Cryptocurus scutulatus, Scolytoplatypus mikado.

Ulmus effusa.
Scolytus ensifer, S. kirschi, S. laevis, S. mali, S. multistriatus, S. pygmaeus, S. scolytus, Xyleborus dryographus, X. monographus, Xylosandrus germanus.

Ulmus elliptica.
Scolytus ensifer, S. laevis.

Ulmus glabra.
Ernoporicus caucasicus, Pteleobius vittatus, Scolytus ensifer, S. kirschi, S. laevis, S. multistriatus, S. pygmaeus, S. scolytus, Xyleborinus saxesenii, Xyleborus dryographus.

Ulmus hollandica.
Scolytus multistriatus, S. scolytus.

Ulmus lacinata.
Scolytus ratzeburgi.

Ulmus laevis.
Pteleobius kraatzii, P. vittatus, Scolytus ensifer, S. jaroschewskii, S. kirschi, S. laevis, S. multistriatus, S. pygmaeus, S. schevyrewi, S. scolytus, S. sulcifrons, Xyleborus monographus.

Ulmus minor.
Pteleobius kraatzii, P. vittatus, Scolytus ecksteini, S. eichhoffi, S. ensifer, S. jaroschewski, S. kirschi, S. laevis, S. multistriatus, S. pygmaeus, S. schevyrewi, S. scolytus, S. sulcifrons, S. zaitzavi.

Ulmus montana.
Scolytus scolytus, Trypodendron signatum.

Ulmus procera.
Pteleobius vittatus.

Ulmus pumila.
Pteleobius vittatus, Scolytus schevyrewi.

Ulmus rubra.
Pityophthorus lautus.

Ulmus spp.
Lymantor coryli, Scolytus intricatus, Xyleborinus saxesenii.

Upuna borneensis.
Xyleborus bidentatus, X. dolosus.

Urophyllum lyallii.
Scolytoplatypus hova, S. permirus.

V

Vatica spp.
Coccotrypes subcribosus, Cyclorhipidion sexspinatum, Cyrtogenius longipennis, Eccoptopterus spinosus, Euwallacea destruens, Sphaerotrypes bryanti, Webbia spinipennis, Xyleborus abscissus, X. amplexicauda, X. ciliatoformis, X. cylindromorphus, X. dolosus, X. justus, X. macropterus, X. pseudopilifer, X. subdolosus.

Vergilia spp.
Miocryphalus grobleri.

Vernonia spp.
Pityophthorus atomus, Scolytoplatypus permirus.

Virola guatemalensis.
Araptus laudatus, Cnemonyx glabratus.

Viscum laxum laxum.
Liparthrum mori.

Vitex spp.
Ambrosiodmus triton, Cryphalus tenuis, Hypothenemus erectus, H. eruditus, Microcorthylus demissus, Monarthrum fasciatum, Xyleborinus saxesenii, Xylosandrus crassiusculus, X. germanus.

Vitis vinifera.
Hypoborus ficus, Xyleborus dispar.

Vitis spp.
Hypothenemus eruditus, Monarthrum fasciatum, Xyleborinus saxesenii, Xylosandrus crassiusculus, X. germanus.

W

Washingtonia robusta.
Coccotrypes carpophagus, C. distinctus.

Wellingtonia spp.
Phloeosinus bicolor.

Werklia insignis.
Corthylus comatus.

X

Xanthophyllum spp.
Ambrosiodmus sarawakensis.

Xylocarpus moluccensis.
Coccotrypes fallax.

Xylopia sericea.
Chramesus parcus.

Xymalos monospora.
Scolytoplatypus fasciatus, Traglostus brevisetosus.

Z

Zelkova carpinifolia.
Scolytus eichhoffi, S. scolytus.

Zelkova serrata.
Scolytus japonicus, S. multistriatus.

Zelkova spp.
Scolytus ecksteini, S. frontalis, S. intricatus.

Zygia spp.
Xyleborus horridus.

Host List for Platypodidae

A

Abies alba.
Platypus cylindrus.

Abies nebrodensis.
Platypus cylindrus.

Acmena spp.
Diapus nebulosus.

Afzelia spp.
Platypus parallelus.

Agathis australis.
Platypus apicalis.

Agathis spp.
Platypus caledoniae, P. candezei.

Albizzia spp.
Crossotarsus externedentatus, C. squamulatus.

Alnus glutinosa.
Platypus cylindrus.

Alstonia spp.

Anacordium spruceanaum.
Platypus parallelus.
Crossotarsus externedentatus.

Anisoptera spp.
Baiocis pernanulus, Crossotarsus externedentatus, C. nitens, C. squamulatus, Diapus borneensis, D. pendleburyi, D. quinquespinatus, D. spinatus, Genyocerus abdominalis, G. biporus, G. exilis, G. talurae, Platypus balanocarpus, P. gotoi, P. loricatus, P. nacior, P. pseudocurtus, P. sandakanensis, P. suffodiens, P. terebrans, Platytarsulus elongatus.

Anthonota lamprophyla.
Platypus spinulosus montivagus.

Antiaris spp.
Crossotarsus squamulatus, Platypus parallelus.

Artocarpus spp.
Platypus pallidus, P. quadrifissilis.

Atherosperma moschatum.
Platypus subgranosus.

B

Bauhinia spp.
Platypus godmani.

Bosqueia angolensis.
Platypus spinulosus montivagus.

Brachystegia spp.
Platypus parallelus.

C

Calophyllum spp.
Baiocis pernanulus, Crossotarsus externedentatus.

Canarium spp.
Crossotarsus externedentatus, C. squamulatus, C. wallacei, Platypus deflectus, P. histrix, P. uncinatus, P. vetulus.

Carapa procera.
Platypus orientalis.

Carpinus betulus.
Platypus cylindrus.

Castanea sativa.
Platypus apicalis, P. cylindrus.

Cecropia obtusifolia.
Platypus godmani, P. parallelus.

Cecropia peltata.
Platypus parallelus.

Citherexylum spp.
Platypus godmani.

Citrus sinensis.
Platypus excisus.

Clarisia racemosa.
Platypus parallelus.

Combretocarpus spp.
Platypus pallidus.

Corynocarpus laevigatus.
Platypus apicalis.

Cratoxylum arborescens.
Platypus sindorae.

D

Dactylocladus spp.
Treptoplatypus circulicauda.

Dialium guianense.
Platypus discicollis, P. excisus.

Dillenia spp.
Crossotarsus wallacei.

Dipterocarpus spp.
Baiocis pernanulus, Crossotarsus externedentatus, C. nitens, C. squamulatus, Diapus borneensis, D. minutissimus, D. spinatus, Genyocerus abdominalis, G. exilis, G. quadrifoveolatus, Platypus artesolidus, P. balanocarpus, P. dryobalanopsis, P. minacior, P. quadrifissilis, P. solidulus, P. suffodiens, P. transformis, Platytarsulus elongatus.

Dracontomelium puberulum.
Crossotarsus externedentatus.

Dryobalanops spp.
Crossotarsus externedentatus, C. nitens, C. squamulatus, Diapus spinatus, D. borneensis, D. minor, D. minutissimus, Genyocerus abdominalis, G. biporus, G. exilis, G. quadrifoveolatus, Platypus balanocarpus, P. dryobalanopsis, P. quadrifissilis, P. uncinatus, Platytarsulus biconicus.

Durio spp.
Genyocerus abdominalis.

Dyera spp.
Crossotarsus wallacei, Diapus spinatus, Platypus bajulus, P. suffodiens, P. transformis.

Dysoxylum spp.
Platypus capitilanatus.

Dysoxylum spectabile.
Platypus apicalis.

E

Enterolobium schomburgkii.
Platypus parallelus.

Eucalyptus cypellocarpa.
Platypus tuberculosus.

Eucalyptus deglupta.
Crossotarsus externedentatus, Diapus quinquespinatus.

Eucalyptus ovata.
Platypus tuberculosus.

Eucalyptus saligna.
Platypus apicalis.

Eugenia malaccensis.
Platypus parallelus.

Eugenia spp.
Crossotarsus externedentatus.

F

Ficus elastica.
Platypus segnis.

Ficus macrosperma.
Platypus spinulosus montivagus.

Ficus spp.
Platypus capitilanatus.

Fraxinus angustifolia.
Platypus cylindrus.

Fraxinus excelsior.
Platypus cylindrus.

G

Galbulimima spp.
Platypus acetabuliformis comalis, P. aspicis.

Gluta spp.
Baiocis pernanulus, Crossotarsus externedentatus, C. squamulatus, Platypus pallidus, P. perbrevis.

Gmelina arborea.
Crossotarsus externedentatus, C. squamulatus, C. wallacei.

Gonystylus bancanus.
Platypus cavus, P. cupulatus, P. insulindicus, P. jansoni, P. solidus, Crossotarsus majusculus, C.wallacei.

Gonystylus spp.
Platypus insulindicus, Treptoplatypus circulicauda.

Guarea guidonia.
Platypus parallelus.

Guatteria spp.
Platypus obtusus.

H

Heliocarpus appendiculatus.
Platypus godmani, P. segnis.

Heritiera littoralis.
Platypus uncinatus, P. lucasi.

Hevea spp.
Platypus parallelus.

Homalium spp.
Platypus quadrifissilis, P. uncinatus.

Hopea spp.
Genyocerus abdominalis, Platypus puerulus.

Hydnocarpus spp.
Platypus quadrifissilis.

Hymenolobium excelsum.
Platypus parallelus.

I

Inga spp.
Platypus excisus.

Intsia bijuga.
Diapus pusillimus.

Intsia spp.
Crossotarsus externedentatus.

K

Koompassia malaccensis.
Crossotarsus externedentatus.

L

Lophopetalum spp.
Platypus signatus.

M

Macaranga spp.
Platypus caelestis, P. spiniventris.

Mangifera indica.
Platypus parallelus.

Mangifera spp.
Crossotarsus externedentatus, Genyocerus abdominalis, Platypus histrix, P. pallidus, P. perbrevis.

Melanorrhoea spp.
Baiocis pernanulus, Crossotarsus externedentatus, Platypus pallidus, P. perbrevis.

Mezilaurus itauba.
Platypus parallelus.

Myristica spp.
Platypus gerstaeckeri.

N

Nothofagus fusca.
Platypus caviceps, P. gracilis.

Nothofagus menziesii.
Platypus caviceps.

Nothofagus pullei.
Diapus elongatus.

Nothofagus solandri.
Platypus apicalis, P. caviceps, P. gracilis.

Nothofagus spp.
Platypus crassicornis.

O

Ocotea coriacea.
Platypus parallelus.

Octomeles sumatrana.
Crossotarsus externedentatus, C. squamulatus, Platypus terebrans, Spathidicerus thomsoni.

Octomeles spp.
Platypus loricatus, P. signatus.

Olearia rani.
Platypus apicalis.

P

Palaquium spp.
Genyocerus abdominalis, Platypus pallidus.

Parartocarpus spp.
Platypus loricatus, P. vetulus, Treptoplatypus bifidus.

Parinarium excelsa.
Platypus orientalis.

Parinarium spp.
Crossotarsus externedentatus, Platypus perbrevis, P. quadrifissilis.

Parishia spp.
Platypus pallidus.

Parkia spp.
Platypus parallelus.

Pentacme spp.
Crossotarsus externedentatus, Platypus truncatus.

Pinus caribaea.
Platypus excisus, P. parallelus.

Pinus merkusii.
Platypus pseudocupulatus.

Pinus radiata.
Platypus apicalis.

Planchonia spp.
Crossotarsus externedentatus.

Pouteria neglecta.
Platypus segnis.

Protium spp.
Baiocis kuntzeni.

Prunus avium.
Platypus cylindrus.

Prunus spp.
Platypus capitilanatus.

Pseudosindora spp.
Crossotarsus externedentatus, Platypus pallidus.

Pterocarpus rohrii.
Platypus excisus, P. parallelus.

Pterocymbium beccarii.
Genyocerus abdominalis.

Pyrus communis.
Platypus cylindrus.

Q

Quercus castaneifolia.
Platypus cylindrus.

Quercus castaneifolia incana.
Platypus cylindrus.

Quercus cerris.
Platypus cylindrus.

Quercus frainetto.
Platypus cylindrus.

Quercus ilex.
Platypus cylindrus.

Quercus lusitanica.
Platypus cylindrus.

Quercus pedunculata.
Platypus cylindrus.

Quercus petraea.
Platypus cylindrus.

Quercus robur.
Platypus cylindrus.

Quercus rotundifolia.
Platypus cylindrus.

Quercus sessiliflora.
Platypus cylindrus.

Quercus suber.
Platypus cylindrus.

R

Rhamnus capreaefolia.
Platypus excisus.

S

Sandoricum spp.
Platypus insulindicus.

Scaphium spp.
Platypus terebrans, Spathidicerus thomsoni.

Schizomeria ovata.
Crossotarsus nitescens.

Shorea spp.
Baiocis pernanulus, Crossotarsus fractus, C. nitens, C. ursus, Diapus borneensis, D. minutissimus, D. pendleburyi, D. spinatus, Genyocerus abdominalis, G. compactus, Platypus artesolidus, P. balanocarpus, P. drynis, P. omega, P. sandakanensis, brans, P. vetulus, Platytarsulus biconicus.

Sindora spp.
Crossotarsus externedentatus, C. wallacei.

Sloanea berteriana.
Platypus parallelus.

Sorbus aucuparia.
Platypus cylindrus.

Sphenostemnon spp.
Diapus turgidus.

Spondias spp.
Diapus quinquespinatus, Platypus parallelus.

Strombosia grandifolia.
Platypus spinulosus montivagus.

Swietenia macrophylla.
Platypus excisus.

Swietenia spp.
Platypus gerstaeckeri.

Syzygium spp.
Platypus gongylodes, P. pulvinatus quadricornutus.

T

Tarrietia spp.
Crossotarsus externedentatus, C. lecontei, C. squamulatus, Diapus spinatus.

Taxodium distichum.
Platypus compositus.

Terminalia spp.
Platypus parallelus.

Ternostroenia spp.
Diapus elongatus.

Theobroma spp.
Platypus parallelus.

Tilia spp.
Platypus cylindrus.

Toonia sureni.
Crossotarsus externedentatus.

U

Ulmus leavis.
Platypus cylindrus.

Ulmus minor.
Platypus cylindrus.

Upuna borneensis.
Genyocerus abdominalis, G. exilis.

V

Vatica spp.
Diapus minutissimus, Genyocerus abdominalis, Platypus balanocarpus, P. franciai, P. octospinosus, Platytarsulus elongatus.

X

Xanthophyllum spp.
Crossotarsus barbatus, Platypus insulindicus, P. luniger, P. quadrifissilis.

Bibliography Supplement

The following bibliography is a supplement to Wood & Bright (1987, 1992) and contains references published from 1990 through 1994, plus references from previous years missed in either of the two preceding bibliographies. Several 1995 references are included where deemed necessary to provide the most up-to-date information on taxonomy or biology. References marked with an asterisk [*] have not been seen and the data contained therein are not included in the catalog section of this work.

A

Abbott, I. 1993. Review of the ecology and control of the introduced bark beetle *Ips grandicollis* (Eichhoff) (Coleoptera: Scolytidae) in Western Australia. 1952–1990. CALMScience 1:35–46.

Abraham, Y.J., D. Moore, and G. Godwin. 1990. Rearing and aspects of biology of *Cephalonomia stephanoderis* and *Prorops nasuta* (Hymenoptera: Bethylidae) parasitoids of the coffee berry borer, *Hypothenemus hampei* (Coleoptera: Scolytidae). Bulletin of Entomological Research 80:121–128.

Abreu, R.L.S. de. 1992. Estudo da ocorrência de Scolytidae e Platypodidae em Madeiras da Amazonia. [Study of the occurrence of Scolytidae and Platypodidae in Amazonian wood]. Acta Amazonica 22:413–420.

Adam, L. 1992. Békés megye bogárfaunája. VI. Anthribidae-Scolytidae (Coleoptera). [The Coleoptera fauna of the county Békés (se Hungary). VI. Anthribidae-Scolytidae (Coleoptera)]. Folia Entomologica Hungarica 52: 195–218.

Adlung, K.G., P. Schicke, and J. O'Svath. 1986. Analysis of an investigation on the control of the spruce bark beetle (*Ips typographus* L.) by means of pheromones. II. Summary and comparison of two locations. Zeitschrift für Pflanzenkrankheiten und Pflanzenschutz 93: 574–584.

Afsharpour, F. and E. Adeli. 1973. The Dutch elm disease in Iran. Abstracts of papers, 2nd International Congress of Plant Pathology, Minneapolis, MN. 1973:0693.

Agnihothrudu, V. 1991. More on berry borer resistance to endosulfan. Indian Coffee 55:7–8.

Agosta, W.C. 1992. Chemical communication: the language of pheromones. Scientific American Library: New York, NY.

Akers, R.P., H.K. Preisler, and D.L. Wood. 1993. Interactions between components of the aggregation pheromone during chemotaxis by the bark beetle *Ips paraconfusus*. Journal of Chemical Ecology 19:863–879.

Aksent'yev, S.I. 1991. Description of larva of *Thamnurgus pegani* and taxonomic status of the genus in the systematics of barkbeetles (Coleoptera: Scolytidae). (In Russian). Zoologicheskiy Zhurnal 70:147–149 (English translation in Entomological Review 71:167–[illegible], 1992).

–[illegible] 1992. On the biology of Scolytidae ([illegible]leoptera). (In Russian). Entomologicheskoye Obozreniye 71:302–313 (English translation in Entomological Review 72:120–132, 1993).

——. 1994. Undescribed and little-known larvae of bark beetles (Coleoptera, Scolytidae) from Tajikistan. (In Russian). Entomologicheskoye Obozreniye 73:103–109 (English translation in Entomological Review 74:1–6, 1995).

Alatorre Rosas, R. 1976. Causes of the decline and death of Cypress. Instituto Nacional de Investigaciones Forestales, Mexico. Boletin Technico 49.

Aldrich, R.C. 1976. Evaluation of Skylab (EREP) data for forest and rangeland surveys. United States Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station (Berkeley, CA). Research Paper PSW-113.

Alexander, K.N.A. 1992. Further records of deadwood Coleoptera from Nettlecombe Park, Somerset, including *Phloiotrya vaudoueri* Mulsant new to the country. British Journal of Entomology and Natural History 5:187–188.

——. 1994. *Xyleborus saxesenii* (Ratzeburg) (Coleoptera: Scolytidae) new to Cornwall. British Journal of Entomology and Natural History 7:36.

Alexander, S.A., J.M. Skelly, and R.S. Webb. 1980. Annosum root rot associated with reduced radial growth in southern pine beetle infested loblolly pine. Phytopathology 70:687.

Allen, A.A. 1990. *Pityophthorus lichtensteini* (Ratz.) (Col., Scolytidae) in Speyside. Entomologist's Monthly Magazine 126:19.

Alosi, M.C. and J.L. Robertson. 1992. Biochemical indicators of population status of pine bark beetles. Page 4 *In* Jane L. Hayes and J.L. Robertson (eds.), Proceedings of a workshop on bark beetle genetics: current status of research. May 17–18, 1992, Berkeley, California. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-138.

Ambrosi, P., D. Angheben, and C. Salvadori. 1990. Tecniche di difesa e di controllo delle popolazioni di Scolitidi in boschi di conifere. [Control techniques for bark beetles in conifer wood]. Monti e Boschi 41:22–26.

Amman, G.D. 1994. Potential of verbenone for reducing lodgepole and ponderosa pine mortality caused by mountain pine beetle in high-value situations. Pages 33–37 *In* Patrick J. Shea (tech. coord.). Proceedings of the Symposium on Management of Western Bark Beetles with Pheromones: Research and Development. Kailua-Kona. Hawaii. June 22–25, 1992. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-150.

Amman, G.D. and D.L. Bartos. 1991. Mountain pine beetle offspring characteristics associated with females producing first and second broods. male presence. and egg gallery length. Environmental Entomology 20:1562–1567.

Ammon, G.D. and K.C. Ryan. 1991. Insect infestation of fire-injured trees in the Greater Yellowstone area. United States Department of Agriculture. Forest Service. Intermountain Research Station (Ogden. UT). Research Note INT-398.

———. 1994. Using pheromones to protect heat-injured lodgepole pine from mountain pine beetle infestation. United States Department of Agriculture. Forest Service. Intermountain Research Station (Ogden. UT). Research Note INT-419.

Ammon, G.D., R.W. Thier, J.C. Weatherby, L.A. Rasmussen, and A.S. Munson. 1991. Optimum dosage of verbenone to reduce infestation of mountain pine beetle in lodgepole pine stands of central Idaho. United States Department of Agriculture. Forest Service. Intermountain Research Station (Ogden. UT). Research Paper INT-446.

***Ammer, U. and H. Weiss.** 1967. Trials of chemical protection of conifer stemwood. Holz-Zentralblatt 93.

Anderbrandt, O. 1990. Gallery construction and oviposition of the bark beetle *Ips typographus* (Coleoptera: Scolytidae) at different breeding densities. Ecological Entomology 15:1–8.

Anderson, W.W. and C.W. Berisford. 1992. Bark beetle genetics. Page 6 *In* Jane L. Hayes and J.L. Robertson (eds.). Proceedings of a workshop on bark beetle genetics: current status of research. May 17–18, 1992, Berkeley. California. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-138.

Annila, E. and R. Heikkila. 1991. Breeding efficiency in *Tomicus piniperda* and shoot damage after late autumn thinning of young *Pinus sylvestris* stands. Scandinavian Journal of Forest Research 6:197–208.

Anonymous. 1987p. Piedmont risk—A system to calculate the risks and hazards of pine stand to possible attack by the southern pine beetle. United States Department of Agriculture. Forest Service. Southern Region (Atlanta. GA). Protection Report R8-PR-2.

———. 1990a. *Dendroctonus micans*—The great spruce bark beetle. United Kingdom Forestry Commission. Plant Health Information Sheet 14.

———. 1990b. Insects in western wood. Western Wood Products Association. Portland. Oregon.

———. 1991a. Dutch elm disease arrives in Saskatchewan. Blue Jay 49:117.

———. 1992a. Spruce bark beetles—control options for the home or lot owner. University of Alaska. Cooperative Extension Service. Fairbanks. Alaska.

———. 1992b. Control of coffee berry borer *Hypothenemus hampei* (Ferrari). Kenya Coffee 57:1339–1340.

———. 1992c. Scolytids. (In Russian). Zashchita Rastenii (Moscow) 1992(4):62–63.

———. 1993a. Forestry research in Canada: The high cost of ambrosia. Basic Impacts (Royal Society of Canada) 1(2) (May).

———. 1993b. Introducing the pine shoot beetle. Yankee Nursery Quarterly (Storrs, CT) 3(1):1–5.

———. 1993c. Coffee berry borer: finding an answer in Colombia. CAB International News (December):6.

———. 1994a. Coffee berry borer (Coleoptera: Scolytidae) *Hypothenemus hampei* (Ferr.). Indian Coffee 58:15–16.

———. 1994b. Pest and pesticide management on southern forests. United States Department of Agriculture. Forest Service. Southern Region (Atlanta. GA). Management Bulletin R8-MB60.

———. 1994c. Phytosanitary procedure: Methyl bromide fumigation of wood to control insects. Bulletin OEPP 24:321.

———. 1994d. Phytosanitary procedure: Fermenting (composting) of bark of conifers. Bulletin OEPP 24:324–325.

Apel, K.H. 1976. Problems of forest protection with rational tending of young pine stands, particularly with chemical thinning. Beitrage für die Forstwirtschaften 10:48–51.

***Apel, K.H. and D. Richter.** 1990. Heimische rinden- und holzbrutendeinsekten (Stammschadlinge). [Indigenous bark- and wood-breeding insects (stem pests)]. Merkblatt-Institut für Forstwissenschaften Eberswalde 1990(47).

Arambourg, Y. 1975. Insectes nuisibles à l'olivier. II Sem. Oleicola International. Córdoba (España).

Archelas, A. and R. Furstoss. 1992. Synthesis of optically pure pityol-a pheromone of the bark beetle *Pityophthorus pityographus*—using a chemoenzymatic route. Tetrahedron Letters 33:5241–5242.

Arguedas Gamboa, M. and F. Scorza Reggio. 1991. Observaciones sobre la biologia de *Scolytodes alni* Wood (Coleoptera: Scolytidae) descortezador del jaul (*Alnus acuminata*). [Observations on the biology of *Scolytodes alni* Wood (Coleoptera: Scolytidae) on alder]. Manejo Integrado de Plagas 1991(20–21): 23–25.

Armour, C.D. 1984. Fuel and vegetation succession in response to mountain pine beetle epidemics in northwestern Montana. Forestry Abstracts 45:7.392.

Arnold, D.C. and S.R. Jiracek. 1982. Beetles of Oklahoma pines. Oklahoma State University (Stillwater, OK). Agriculture Experiment Station Publication MP-113.

***As, S.** 1993. Are habitat islands islands? Woodliving beetles (Coleoptera) in deciduous forest fragments in boreal forest. Ecography 16: 219–228.

Ascoli-Christensen, A., S.M. Salom, and T.L. Payne. 1993. Olfactory receptor cell responses of *Ips grandicollis* (Eichhoff) (Coleoptera: Scolytidae) to intra- and interspecific behavioral chemicals. Journal of Chemical Ecology 19:699–712.

Atkinson, T.H. 1993a. A new species of *Trischidias* (Coleoptera: Scolytidae) from southern Florida with a key to the species of the southeastern United States. Florida Entomologist 76:416–423.

———. 1993b. A new species of *Pityophthorus* Eichhoff (Coleoptera: Scolytidae) from southern Florida with a key to the Florida species. Florida Entomologist 76:608–616.

———. 1993c. Rediscovery of two neotropical bark beetles (Coleoptera: Scolytidae) from southern Florida. The Coleopterists Bulletin 47:287–288.

Atkinson, T.H. and S.B. Peck. 1994. Annotated checklist of the bark and ambrosia beetles (Coleoptera: Platypodidae and Scolytidae) of tropical southern Florida. Florida Entomologist 77:313–329.

Atkinson, T.H., R.J. Rabaglia, and D.E. Bright. 1990. Newly detected exotic species of *Xyleborus* (Coleoptera: Scolytidae) with a revised key to species in eastern North America. The Canadian Entomologist 122:93–104.

Atkinson, T.H., R.J. Rabaglia, S.B. Peck, and J.L. Foltz. 1991. New records of Scolytidae and Platypodidae (Coleoptera) from the United States and the Bahamas. The Coleopterists Bulletin 45:152–164.

Avtzis, N. 1991. Beifange in Borkenkäfer-Pheromonfallen in Nord-Griechenland. [Nontarget captures in bark-beetle pheromone traps in northern Greece]. Anzeiger für Schädlingskunde. Pflanzenschutz. Umweltschutz 64: 13–14.

Ayer, W.A., P.A. Craw, and K. Nozawa. 1991. Two 1h-naphtho-(2.3-c)pyran-1-one metabolites from the fungus *Paecilomyces variotii*. Canadian Journal of Chemistry 69:189–191.

Ayer W.A. and K. Nozawa. 1990. Taxonomy and chemistry of a new fungus from bark beetle infested *Pinus contorta* var. *latifolia*. Part 2. Arthrographol, the metabolite inhibitory to *Ophiostoma clavigerum*. Canadian Journal of Microbiology 36:83–85.

Azoun, A.B. 1990. Contribution à l'étude du cycle biologique de *Phloeotribus scarabaeoides* (Bern) (Col Scolytidae) dans la région de Taroudant (Maroc). [Contribution to the study of the biological cycle of *Phloeotribus scarabaeoides* (Bern) (Col Scolytidae) in the Taroudant (Maroc)]. Al Awamia 1990(73): 87–102.

B

Baader, E.J. and J.P. Vité. 1990. Ablenkstoffe gegen Borkenkäfer. [Response inhibitors for prevention of bark beetle attack]. Allgemaine Forst- und Jagdzeitung 161:145–148.

Baciu, G., D. Baciu, C. Lazarescu, and O. Stanca. 1981. Deprecierea lemnului de foioase din depozite de catre insectele xilofage. Produse chimice noi pentru prevenirea atacului si combaterea insectelor instalate in Lemn. [Degradation of stored hardwood by xylophagous insects and new chemicals for the prevention and control of their attack]. Industria Lemnului 32:45–52.

Baekström, P., L. Li, and B. Koutek. 1991. Modification and synthesis of isoprenoids directed towards insect related compounds. Pages 129–135 *In* I. Hrdy (ed), Insect chemical ecology. Proceedings of a conference held in Tábor, Czechoslovakia, 12–18 August 1990. SPB Academic Publishing: The Hague.

Baier, P. 1991. Zur Biologie des Borkenkäferräubers *Nemosoma elongatum* (L.) (Col.: Ostomidae). [Biology of the bark beetle predator *Nemosoma elongatum* (L.) (Col.: Ostomidae)]. Zeitschrift für Angewandte Zoologie 78: 421–431.

———. 1994. Studies on the relevance of catching *Nemosoma elongatum* (L.) (Col., Ostomidae) in Chalcoprax baited traps for population dynamics of *Pityogenes chalcographus* (L.) (Col., Scolytidae). Journal of Applied Entomology 117:51–57.

Baker, P.S. and J.F. Barrera. 1993. A field study of a population of coffee berry borer, *Hypothenemus hampei* (Coleoptera: Scolytidae), in Chiapas, Mexico. Tropical Agriculture 70:351–355.

Baker, P.S., J.F. Barrera, and A. Rivas. 1992. Life-history studies of the coffee berry borer (*Hypothenemus hampei*, Scolytidae) on coffee trees in southern Mexico. Journal of Applied Ecology 29:656–662.

Baker, P.S., C. Ley, R. Balbuena, and J.F. Barrera. 1992. Factors affecting the emergence of *Hypothenemus hampei* (Coleoptera: Scolytidae) from coffee berries. Bulletin of Entomological Research 82:145–150.

Baker, W.L. and T.T. Veblen. 1990. Spruce beetle and fires in the nineteenth-century subalpine forests of western Colorado. Arctic and Alpine Research 22:65–80.

Bakke, A. 1991a. Socioeconomic aspects of an integrated-pest-management program in Norway. Forest Ecology and Management 39: 299–303.

———. 1991b. Using pheromones in the management of bark beetle outbreaks. Pages 371–377 *In* Y.N. Baranchikov, W.J. Mattson, F.P. Hain and T.L. Payne (eds.), Forest insect guilds: Patterns of interactions with host trees. United States Department of Agriculture, Forest Service, Northeastern Forest Research Station (Radnor, PA). General Technical Report NE-153.

———. 1992. Monitoring bark beetle populations: effects of temperature. Journal of Applied Entomology 114:208–211.

———. 1993. Biller som tiltrekkes til graner under angrep av granbarkbillen *Ips typographus*. [Beetles attracted to Norway spruce under attack by *Ips typographus*]. Norsk Institutt for Skogforskning, Institutt for Skogfag. 24 p.

Bakke, A., T. Saether, and T. Kvamme. 1983. Mass trapping of the spruce bark beetle *Ips typographus*. Pheromone and trap technology. Meddelelser fra Norsk Institutt for Skogforskning 38:1–35.

Baksha, M.W. 1990. Some major forest insect pests of Bangladesh and their control. Bangladesh Forest Research Institute (Chittagong). Forest Entomology Series. Bulletin No 1.

Balakrishnan, M.M., K. Sreedharan, and P.K. Bhat. 1994. Occurrence of the entomopathogenis fungus *Beauveria bassiana* on certain coffee pests in India. Journal of Coffee Research 24:33–35.

Balazuc, J. 1984. Coléoptères de l'Ardeche. Contribution à l'inventaire d'une faune regionale. Bulletin mensuel de la Société linnéenne de Lyon. Supplement 53. 334 pp.

Ballini, R. 1991. New and convenient synthesis of (Z)-heneicos-6-en-11-one, the Douglas fir tussock moth (*Orgyia pseudosugata*) sex pheromone, and (Z)-non-6-en-2-one, the immediate precursor for the synthesis of brevicomin, the sex attractant of the western pine beetle *Dendroctonus brevicomis*. Journal of the Chemical Society, Perkin Transactions 1:1419–1422.

Baltensweiler, W. 1975. Importance of *Zeiraphera diniana* in the biocoenosis of the *Larix decidua Pinus cembra* forest. Mitteilungen der Schweizerischen Entomologischen Gesellschaft 48:5–12.

Barrera, J.F., P.S. Baker, J.E. Valenzuela, and A. Schwarz. 1990a. Introducción de dos especies de parasitoides Africanos a México para el control biológico de la Broca del Café, *Hypothenemus hampei* (Ferrari) (Coleoptera: Scolytidae). [Introduction of two species of African parasitoids to Mexico for biological control of the coffee berry borer *Hypothenemus hampei* (Ferrari) (Coleoptera: Scolytidae)]. Folia Entomológica Mexicana 79: 245–247.

Barrera, J.F., D. Moore, Y.J. Abraham, S.T. Murphy, and C. Prior. 1990b. Biological control of the coffee berry borer, *Hypothenemus hampei*, in Mexico and possibilities for further action. Pages 391–396 *In* Brighton Crop Protection Conference—Pests and Diseases—Vol. 1. British Crop Protection Council, Thornton Heath, UK.

Barrera, J.F., W. de la Rosa, J. Gómez, and A. Castillo. 1991. Establecimiento temporal de *Cephalonomia stephanoderis* (Hymenoptera: Bethylidae), parasitoide de la broca del café (*Hypothenemus hampei*) (Coleoptera: Scolytidae) en el sureste de Chiapas, México. Page 194 *In* Resúmenes del XXVI Congreso Nacional de Entomología.

Barriga T., J.E., T. Curkovic S., T. Fichet L., J.L. Henríquez S., and J. Macaya B. 1993.

Nuevos antecedentes de coleópteros xilofagos y plantas hospederas en Chile, con una recopilacion de citas previas. [New records of wood-boring coleopterans and host plants in Chile with a compilation of previous records]. Revista Chilena de Entomologia 20:65–91.

Bartos, D.L. and G.D. Booth. 1994. Effects of thinning on temperature dynamics and mountain pine beetle activity in a lodgepole pine stand. United States Department of Agriculture, Forest Service, Intermountain Research Station (Ogden, UT). Research Paper INT-RP-479.

Bartos, D.L. and K. Downing. 1990. An expert system for mountain pine beetle under endemic conditions in western lodgepole pine forests. Bulletin of the Ecological Society of America 71 (2 suppl.):86.

———. 1992. An expert system for mountain pine beetle under endemic conditions in western lodgepole pine forests. Page 169 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference, Denver, Colorado, March 25–28, 1991. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

Bartos, D.L. and K.E. Gibson. 1990. Insects of whitebark pine with emphasis on mountain pine beetle. Pages 171–178 *In* W.C. Schmidt and K.J. McDonald (eds.). Proceedings—Symposium on whitebark pine ecosystems: Ecology and management of a high-mountain resource, Bozeman, MT, March 29–31, 1989. United States Department of Agriculture, Forest Service, Intermountain Research Station (Ogden, UT). Research Paper INT-RP-270.

Basset, Y. 1991. The taxonomic composition of the arthropod fauna associated with an Australian rainforest tree. Australian Journal of Zoology 39:171–190.

Basset, Y., A. Favaro, N.D. Springate, and A. Battisti. 1992. Observations on the relative effectiveness of *Scolytus multistriatus* (Marsham) and *Scolytus pygmaeus* (Fabricius) (Coleoptera: Scolytidae) as vectors of the Dutch elm disease. Mitteilungen der Schweizerischen Entomologischen Gesellschaft 65: 61–67.

Bathon, H. 1991. Möglichkeiten der biologischen Bekämpfung von Borkenkäfern. [Possibilities for biological control of bark beetles]. Pages 111–117 *In* Alfred Wulf and R. Kehr (eds.). Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integreiten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Bautista Martinez, N. and T.H. Atkinson. 1988. Biologia y respuesta a dietas semiartificiales de la Broca del Café *Hypothenemus hampei* (Ferr.) (Coleoptera: Scolytidae) bajo condiciones de laboratorio. [Biology and response to semi-artificial diets of *Hypothenemus hampei* (Ferr.) (Coleoptera: Scolytidae) under laboratory conditions]. Revista Chapingo 12(60–61):26–30.

Beardsley, J.W. 1990. *Hypothenemus obscurus* (Fabricius) (Coleoptera: Scolytidae), a new pest of macadamia nuts in Hawaii. Proceedings of the Hawaiian Entomological Society 30:147–150.

Beaver, R.A. 1991b. Reclassification of some Oriental and Australasian Scolytidae (Coleoptera). Entomologist's Monthly Magazine 127:53–54.

———. 1995. New synonymy and taxonomic changes in Oriental and Australasian Scolytidae and Platypodidae (Coleoptera). Annalen des Naturhistorischen Museums in Wein. Series B 97B:197–204.

Beaver, R.A. and P.A. Maddison. 1990. The bark and ambrosia beetles of the Cook Islands and Niue (Coleoptera: Scolytidae and Platypodidae). Journal of Natural History 24: 1365–1375.

Beaver, R.A. and K. Löyttyniemi. 1991. Annual flight patterns and diversity of bark and ambrosia beetles (Col., Scolytidae and Platypodidae) attracted to bait logs in Zambia. Journal of Applied Entomology 112:505–511.

Bedard, W.D., G.T. Ferrell, M.C. Whitmore, and A.S. Robertson. 1990. Trapping evaluation of beetle vectors of black stain root disease in Douglas fir. The Canadian Entomologist 122:459–468.

Beéche C., M.A. and R.S. Muñoz G. 1994. Primer registro del escolítido del olmo, *Scolytus multistriatus* (Marsham) (Coleoptera: Scolytidae), en Chile. Revista Chilena de Entomologia 21:181–183.

Belanger, R.P. 1992. Is silviculture the answer to the southern pine beetle problem? Page 106 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference, Denver, Colorado, March 25–28, 1991. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

Belanger, R.P., R.L. Hedden, and P.L. Lorio, Jr. 1993. Management strategies to reduce losses from the southern pine beetle. Southern Journal of Applied Forestry 17:150–153.

Benazoun, A. 1992. Contributions to the biological study of the olive bark borer, *Phloeotribus* *scarabaeoides* Bern (Col., Scolytidae) in olive trees in the Taroudant region of Morocco. Olivae 40:26–36.

Bennett, D.D, W.E. Bousfield, M.D. McGregor, and K.E. Gibson. 1980. Evaluation of multistage sampling techniques to measure lodgepole pine mortality caused by mountain pine beetle in Montana. 1979. United States Department of Agriculture, Forest Service, Northern Region (Missoula, MT). Report 80-13.

Bennett, R.G. 1994. Cone and seed insects of pines, spruces and western larch. Pages 1–13 *In* Jean J. Turgeon and P. de Groot (eds.). Biology, damage and management of seed orchard pests. Natural Resources Canada, Canadian Forest Service. Information Report FPM-X-89.

Bentz, B.J. 1992. An advisory system for mountain pine beetle management. Page 169 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver, Colorado. March 25–28, 1991. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

Bentz, B.J., G.D. Amman, and J.A. Logan. 1993. A critical assessment of risk classification systems for the mountain pine beetle. Forest Ecology and Management 61:349–366.

Bentz, B.J., J.A. Logan, and G.D. Amman. 1991. Temperature-dependent development of the mountain pine beetle (Coleoptera: Scolytidae) and simulation of its phenology. The Canadian Entomologist 123:1083–1094.

Berendes, K.-H. 1991. Prüfung und Zulassung von Pflanzenschutzmitteln gegen Borkenkäfer. [Testing and registration of pesticides used against bark beetles]. Pages 134–141 *In* Alfred Wulf and R. Kehr (eds.). Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integreiten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Bergvinson, D.J. and J.H. Borden. 1991. Glyphosate-induced changes in the attack success and development of the mountain pine beetle and impact of its natural enemies. Entomologia Experimentalis et Applicata 60: 203–212.

———. 1992a. Enhanced woodpecker predation on the mountain pine beetle, *Dendroctonus ponderosae* Hopk., in glyphosate-treated lodgepole pines. The Canadian Entomologist 124:159–165.

———. 1992b. Enhanced colonization by the blue stain fungus *Ophiostoma clavigerum* in glyphosate-treated sapwood of lodgepole pine. Canadian Journal of Forest Research 22: 206–209.

Berisford, C.W. 1991. Biological control of pine bark beetles: new approaches to an old problem. Pages 57–66 *In* Entomology in Virginia: New problems and new approaches. Virginia Polytechnic Institute and State University, College of Agriculture and Life Sciences. Information Series No. 91-2.

Berisford, C.W., T.L. Payne, and Y.C. Berisford. 1990. Geographical variation in response of southern pine beetle (Coleoptera: Scolytidae) to aggregating pheromones in laboratory bioassays. Environmental Entomology 19:1671–1674.

Berisford, C.W., M.J. Dalusky, P.B. Bush, J.W. Taylor Jr., and Y.C. Berisford. 1991. Efficacy, persistence, ground deposition, and human exposure of polymer-encapsulated lindane and chlorpyrifos used for control of the southern pine beetle. Phytoprotection 72: 15–20.

Berisford, C.W., G.O. Birgersson, M.J. Dalusky, and K.E. Espelie. 1992. Field evaluation of candidate chemicals as kairomones for bark beetle parasitoids. Page 31 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver, Colorado. March 25–28, 1991. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

Bernabò, E. 1991. Sulla presenza a Genova di *Dactylotrypes longicollis* (Woll.) (=*D. uytenboogaarti* Eggers) (Coleoptera Scolytidae). [About the presence in Genoa (Liguria) of *Dactylotrypes longicollis* (Woll.) (=*D. uytenboogaarti* Eggers) (Coleoptera Scolytidae). Bolletino della Società Entomologia Italiana 122:185–187.

———. 1993. Brevi note sulla biologia di *Liparthrum mori* (Aubé) e sulla coleotterofauna xilofaga del fico. [Brief notes on the biology of *Liparthrum mori* Aube and on the xylophagous coleopterous fauna of fig]. Memoires della Società Entomologia Italiana 71: 543–549.

———. 1994. *Cryphalus intermedius* Ferrari, 1867 (Coleoptera Scolytidae). Page 79 *In* Segnalazioni Faunistiche Italiane (N. 242-260). Bolletino della Società Entomologia Italiana 126:75–79.

Berson, D.R. 1992. Pheromones help save Torrey pines. Forestry Research West (Fort Collins, CO), September 1992:17–20

Bertram, S.L. and T.D. Paine. 1994a. Influence of aggregation inhibitors (verbenone and ipsdienol) on landing and attack behavior of *Dendroctonus brevicomis* (Coleoptera: Scolytidae). Journal of Chemical Ecology 20: 1617–1629.

———. 1994b. Response of *Dendroctonus brevicomis* Le Conte (Coleoptera: Scolytidae) to different release rates and ratios of aggregation semiochemicals and the inhibitors verbenone and ipsdienol. Journal of Chemical Ecology 20:2931–2941.

Bevan, D. 1984a. Coping with infestations. The Canadian Entomologist 78:36–40.

———. 1984b. *Orthotomicus erosus* (Wollaston) in Usutu pine plantations. Swaziland. Usutu Pulp Company. Ltd., Forest Research Report 64.

Bichevskis, M.Ya. 1989. Influence of pheromone on the behaviour of the bark beetle *Ips typographus* L. (Col., Scolytidae). (In Russian). Pages 12–28 *In* Z.P. Spalvin'sh (ed). Zashchita sosny i eli v Latviiskoi SSR. Riga: USSR.

Bickel, D.J. 1985. A revision of the Nearctic *Medetera* (Diptera: Dolichopodidae). United States Department of Agriculture. Agricultural Research Service. Technical Bulletin 1692.

Bigler, T.R. 1992. Wilderness red-cockaded woodpecker. southern pine beetle and forest management. Page 110 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver. Colorado. March 25–28. 1991. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-294.

Billings, R.F. 1992. Forecasting infestation trends of the southern pine beetle. Page 171 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver. Colorado. March 25–28. 1991. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-294.

***Billings, R.F. and E. Holsten.** 1969. Progreso realizado en la investigación de insectos forestales de pino insigne. SAG. U. de Chile. Cuerpo de Paz (mimeographed).

Billings, R.F. and W.W. Upton. 1993. Effectiveness of synthetic behavioral chemicals for manipulation and control of southern pine beetle infestations in east Texas. Pages 555–568 *In* Proceedings of the Seventh Biennial Southern Silvicultural Research Conference. Mobile. Alabama. November 17–19. 1992. United States Department of Agriculture. Forest Service. Southern Forest Experiment Station (New Orleans. LA). General Technical Report SO-93.

Birgersson, G., J.A. Byers, G. Bergstrom, and J. Lofqvist. 1990. Production of pheromone components. chalcogran and methyl(e.z)-2.4-decadiendate. in the spruce engraver *Pityoenes chalcographus*. Journal of Insect Physiology 36:391–395.

Birgersson, G., M.J. Dalusky, K.E. Espelie, and C.W. Berisford. 1992. Isolation and identification of kairomones utilized by southern pine beetle parasitoids. Page 30 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver. Colorado. March 25–28. 1991. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-294.

Blanche, C.A., P.L. Lorio, Jr., R.A. Sommers, J.D. Hodges, and T.E. Nebeker. 1992. Seasonal cambial growth and development of loblolly pine: xylem formation. inner bark chemistry. resin ducts. and resin flow. Forest Ecology and Management 49:151–165.

Blinova, S.L., E.A. Korenchenko, and E.S. Ivanova. 1990. Culturing helminth-free bark beetles and experimental infestations of the elongated bark beetle with various species of nematodes. Pages 22–26 *In* M.D. Sonin (ed). Helminths of Insects. E.J. Brill: Leiden.

Bloch, R. and Matar Seck. 1990. Stereo-selective and enantioselective synthesis of (–)-(1R.3R.5S)-1.3-dimethyl-2.9-dioxabicylo[3.3.1] nonane. Tetrahedron Asymmetry 1:855–856.

Bombosch, S. 1991. On the role of the tree in relation to colonization by *Ips typographus* L. Pages 347–351 *In* Y.N. Baranchikov. W.J. Mattson. F.P. Hain and T.L. Payne (eds.). Forest insect guilds: Patterns of interactions with host trees. United States Department of Agriculture. Forest Service. Northeastern Forest Research Station (Radnor, PA). General Technical Report NE-153.

Bombosch, S. and W. Dedek. 1994. Integrated pest control against *Ips typographus* (L.): Combined use of pheromones and the systemic insecticide methamidophos (IPIDEX). (In German). Zeitschrift für Pflanzenkrankheiten und Pflanzenschutz 101:508–518.

Booth, R.G., M.L. Cox, and R.B. Madge. 1990. IIE guides to insects of importance to man. 3. Coleoptera. International Institute of Entomology. London.

***Borbón, O.** 1989. Bioécologie d'un ravageur des baies de caféier. *Hypothenemus hampei* Ferr. (Coleoptera: Scolytidae) et de ses parasitoides au Togo. Unpublished thesis. Universidad Paul Sabatier (Francia).

Borden, J.H. 1992a. An IPM planning process for mountain pine beetle management. Page 123 *In* Douglas C. Allen and L.P. Abrahamson (eds.), Proceedings: North American Forest Insect Work Conference. Denver, Colorado. March 25–28, 1991. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

———. 1992b. Two tree baiting tactics for the management of bark beetles with semiochemicals. Journal of Applied Entomology 114: 201–207.

———. 1992c. What we don't know about semiochemical-based communication in *Dendroctonus, Ips...Polygraphus*, ad infinitum. Page 112 *In* Douglas C. Allen and L.P. Abrahamson (eds.), Proceedings: North American Forest Insect Work Conference. Denver, Colorado, March 25–28, 1991. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland, OR), General Technical Report PNW-GTR-294.

———. 1993. Uncertain fate of spot infestations of the mountain pine beetle, *Dendroctonus ponderosae* Hopkins. The Canadian Entomologist 125:167–169.

———. 1994. Future of semiochemicals for the management of bark beetle populations. Pages 5–10 *In* Patrick J. Shea (tech. coord.), Proceedings of the Symposium on Management of Western Bark Beetles with Pheromones: Research and Development. Kailua-Kona, Hawaii, June 22–25, 1992. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany, CA). General Technical Report PSW-GTR-150.

Borden, J.H., L.J. Chong, and B.S. Lindgren. 1990. Redundancy in the semiochemical message required to induce attack on lodgepole pines by the mountain pine beetle, *Dendroctonus ponderosae* Hopkins (Coleoptera: Scolytidae). The Canadian Entomologist 122: 769–777.

Borden, J.H., D.R. Devlin, and D.R. Miller. 1992. Synomones of two sympatric species deter attack by the pine engraver, *Ips pini* (Coleoptera: Scolytidae). Canadian Journal of Forest Research 22:381–387.

Borden, J.H., L.J. Chong, B.S. Lindgren, E.J. Begin, T.M. Ebata, L.E. Malauchlan and R.S. Hodgkinson. 1993. A simplified tree bait for the mountain pine beetle. Canadian Journal of Forest Research 23:1108–1113.

Borges, P.A.V. 1990. A checklist of the Coleoptera from the Azores with some systematic and biogeographic comments. Boletim do Museu Municipal do Funchal 42:87–136.

———. 1992. Biogeography of the Azorean Coleoptera. Boletim do Museu Municipal do Funchal 44:5–76.

***Bouhot, L.** 1990. Distribution spatio-temporelle et stratégies d'échantillonnage des attaques de *Tomicus piniperda* L. et d'*Ips sexdentatus* Boern. sur le pin sylvestre *Pinus sylvestris* L. en forêt d'Orléans. Thesis. l'Université Claude Bernard Lyon I.

***Bouhot, L., D. Debouzie, and F. Lieutier.** 1990. Sampling procedures for within-tree populations of *Tomicus piniperda* (Coleoptera: Scolytidae). Proceedings of the XIXth IUFRO World Congress. Montreal. Canada. August 1990.

Bouhot, L., D. Sauvard, H. Jactel, and F. Lieutier. 1992. Etat et perspectives des recherches sur l'échantillonnage des populations de coléoptères Scolytidae inféodés au pin sylvestre en France. [Current state and future prospects of research on the sampling of Scolytidae (Coleoptera) populations infesting the Scotch pine in France]. Mémoires de la Société royal belge d'Entomologie 35: 499–504.

Bourdonné, J-C. and B. Bordy. 1993. Matériaux pour un catalogue des Coléoptères des Pyrénées-Troisième note-. [Material for a catalogue of Coleoptera from the Pyrennes. Third note]. L'Entomologiste 49:79–89.

Bowers, W.W. and J.H. Borden. 1990. Evidence for a male-produced aggregation pheromone in the four-eyed spruce bark beetle, *Polygraphus rufipennis* (Kirby) (Col., Scolytidae). Journal of Applied Entomology 110:292–299.

———. 1992. Attraction of *Lasconotus intricatus* Kraus. (Coleoptera: Colydiidae) to the aggregation pheromone of the four-eyed spruce bark beetle, *Polygraphus rufipennis* (Kirby) (Coleoptera: Scolytidae). The Canadian Entomologist 124:1–5.

Bowers, W.W., G. Gries, J.H. Borden, and H. D. Pierce, Jr. 1991. 3-Methyl-3-buten-1-ol: an aggregation pheromone of the four-eyed spruce bark beetle, *Polygraphus rufipennis* (Kirby) (Coleoptera: Scolytidae). Journal of Chemical Ecology 17:1989–2002.

Brandes, H. 1990. Schutz von Fichtenstammholz vor Befall durch holzbrutende Borkenkäfer durch Behandlung mit Kalkbruhe. [Protection of spruce stemwood against attack by wood-breeding bark beetles by treatment with "lime brew"]. Forst und Holz 45:184–185.

Brandt, J.P. and P. Amirault. 1994. Forest insect- and disease-caused depletions to forests of west-central Canada: 1982–87. Natural Resources Canada. Canadian Forest Service. Northwestern Region. Northern Forestry Centre (Edmonton. AB). Information Report NOR-X-333.

Brasse, D. 1991. Zur Auswirkung von Pflanzenschutzmitteln auf Nutzorganismen. [The effect of pesticides on beneficial organisms]. Pages 155–160 *In* Alfred Wulf and R. Kehr (eds.). Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integreiten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Brechtel, H.M. 1991. Ergebnisse wasserchemischer Begleitunterschungen bei Nasslagerung von Sturmholz in Hessen. [Results of hydrochemical investigations accompanying water storage of wind-thrown timber in Hesse]. Pages 58–69 *In* Alfred Wulf and R. Kehr (eds.). Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integreiten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Bridge, P.D., Y.J. Abraham, M.C. Cornish, and C. Prior. 1990. The chemotaxonomy of *Beauveria bassiana* (Deuteromycotina: Hyphomycetes) isolates from the coffee berry borer *Hypothenemus hampei* (Coleoptera: Scolytidae). Mycopathologia 111:85–90.

Bright, D.E. 1992a. Systematics research. Page 25 *In* Jane L. Hayes and J.L. Robertson (eds.). Proceedings of a workshop on bark beetle genetics: current status of research. May 17–18. 1992. Berkeley. California. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-138.

———. 1992b. Synopsis of the genus *Hemicryphalus* Schedl with descriptions of four new species from Borneo (Scolytidae). Koleopterologische Rundschau 62:183–190.

———. 1993. Systematics of bark beetles. Pages 25–36 *In* T.D. Schowalter and G.M. Filip (eds.). Beetle-pathogen interactions in conifer forests. Academic Press: London.

———. 1994. New records and new species of Scolytidae from Borneo (Coleoptera: Scolytidae). Koleopterologische Rundschau 64:257–274.

Bright, D.E. and G.O. Poinar, Jr. 1994. Scolytidae and Platypodidae (Coleoptera) from Dominican Republic amber. Annals of the Entomological Society of America 87:170–194.

Bright, D.E. and R.E. Skidmore. 1991. Two new records of Scolytidae (Coleoptera) from Canada. The Coleopterists Bulletin 45:368.

Bright, D.E., R.E. Skidmore, and K. Dunster. 1994. Scolytidae (Coleoptera) associated with Dwarf Hackberry. *Celtis tenuifolia* Nuttall. in Ontario. Canada. The Coleopterists Bulletin 48:93–94.

Broadway, R. 1991. Pine beetle research earns D125.000 grant. Mississippi State University Agricultural and Forestry Experiment Station (Mississippi State. MS). MAFES research highlights 54(11):2.

***Brown, A.E.** 199?. Management of wood destroying organisms. Michigan State University (East Lansing. MI). Cooperative Extension Service. Extension Bulletin E-2047.

Bruge, H. 1995. *Xylosandrus germanus* (Blandford. 1894) (Belg. sp. nov.) (Coleoptera Scolytidae). Bulletin & Annales Société royale belge Entomologie 131:249–264.

Brun, L.O. and B. Decazy. 1992. Study of the toxicity of endosulfan on the parasitic entomofauna of the coffee berry borer *Hypothenemus hampei* Ferr. (Coleoptera. Scolytidae). (In French). Café. Cacao. Thé 36:121–128.

Brun, L.O., V. Gaudichon, and P.J. Wigley. 1993. An artificial diet for continuous rearing of the coffee berry borer. *Hypothenemus hampei* (Ferrari) (Coleoptera: Scolytidae). Insect Science and its Application 14:585–587.

Brun, L.O. and D.M. Suckling. 1991. Estimating selection for endosulfan resistance in coffee berry borer in New Caledonia. Pages 257–259 *In* A.J. Popay (ed). Proceedings of the Forty Fourth New Zealand Weed and Pest Control Conference. Palmerston North. New Zealand.

———. 1992. Field selection for endosulfan resistance in coffee berry borer (Coleoptera: Scolytidae) in New Caledonia. Journal of Economic Entomology 85:325–334.

———. 1993. A reliable insecticide resistance field test kit for coffee berry borer *Hypothenemus hampei*. Resistant Pest Management 5:8–9.

Brun, L.O., C. Marcillaud, V. Gaudichon, and D.M. Suckling. 1990. Monitoring endosulphan and lindane resistance in the coffee berry borer. *Hypothenemus hampei* (Coleoptera: Scolytidae) in New Caledonia. Bulletin of Entomological Research 80: 129–135.

———. 1991. Evaluation of a rapid bioassay for diagnosing endosulfan resistance in coffee berry borer. *Hypothenemus hampei* (Ferrari) (Coleoptera: Scolytidae). Tropical Pest Management 37:221–223.

Brun, L.O., C. Mur, P. Caplong, and B. Decazy. 1993. Etude de l'action de l'endosulfan sur la dynamique des populations de l'entomofaune parasitaire du scolyte des fruits de cafetier *Hypothenemus hampei* (Ferr.) (Coleoptera: Scolytidae). [Study of the effect of endosulphan on the population dynamics of the parasitic insect fauna of coffee bean borer. *Hypothenemus hampei* (Ferr.) (Coleoptera: Scolytidae)]. Café. Cacao. Thé 37:215–226.

Brun, L.O., C. Marcillaud, V. Gaudichon, and D.M. Suckling. 1994. Cross resistance between insecticides in coffee berry borer. *Hypothenemus hampei* (Coleoptera: Scolytidae) from New Caledonia. Bulletin of Entomological Research 84:175–178.

***Bubala, M., J. Selander, and K. Löyttyniemi.** 1989. Forest pests and their management in Zambia. Division of Forest Research (Kitwe) Zambia. Forest Department Research Note 43.

Büchs, W. 1990. Betrachtungen zur Eignung Rindenbewohnender Coleopterenzönosen als Indikatorsysteme für die Früherkennung von Baumschäden. [On the suitability of bark-dwelling beetles as indicators of tree damage]. Mitteilungen der Deutschen Gesellschaft für Allgemeine und Angewandte Entomologie 7:335–345.

Bunce, H.W.F. and J.A. McLean. 1990. Hurricane Gilbert's impact on the natural forests and *Pinus caribaea* plantations of Jamaica. Commonwealth Forestry Review 69:147–155.

Burakowski, B., M. Mroczkowski, and J. Stefanska. 1992. Chrzaszcze—Coleoptera. Ryjkowcowate prócz ryjkowców—Curculionoidea prócz Curculionidae. [Catalog of the Polish fauna no. 51. Coleoptera Part XXIII. Curculionoidea excluding Curculionidae Volume 18]. Katalog Fauny Polski. Czesc XXIII. tom 18. (Published by Museum and Institute of Zoology. Polish Academy of Science. Warsaw).

Burke, H.E. and B.E. Wickman. 1990. Northeastern Oregon bark beetle control project 1910–11. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-249.

Burke, S. 1992. Use patterns and non-target effects of forest coleopteran semiochemicals. Pages 60–78 *In* R.L. Ridgway. M. Inscoe and H. Arn (eds.). Insect pheromones and other behaviour-modifying chemicals: Applications and regulation. British Crop Protection Council Monograph 51.

Burkhart, H.E., D.E. Munsey, Jr., R.L. Amateis, and R.L. Hedden. 1991. Predicting impact of southern pine beetle infestations on rotation-age yield of loblolly pine stands. Forest Ecology and Management 47:261–268.

Busch, H.P. 1990. Vorbeugender Waldschutz als grundlage des intergrierten Pflanzenschutzes an Fichte. [Preventive forest protection as a basis for the integrated plant protection of spruce]. Gesunde Pflanzen 42:411–414.

Byers, J.A. 1991. Simulation of the mate-finding behaviour of pine shoot beetles. *Tomicus piniperda*. Animal Behaviour 41: 649–660.

———. 1992a. Attraction of bark beetles. *Tomicus piniperda*. *Hylurgops palliatus*, and *Trypodendron domesticum* and other insects to short-chain alcohols and monoterpenes. Journal of Chemical Ecology 18:2385–2402.

———. 1992b. Grid cell contour mapping of point densities: bark beetle attacks. fallen pine shoots. and infested trees. Oikos 63:233–243.

———. 1992c. Dirichlet tessellation of bark beetle spatial attack points. Journal of Animal Ecology 61:759–768.

———. 1993a. Avoidance of competition by spruce bark beetles. *Ips typographus* and *Pityogenes chalcographus*. Experimentia (Basel) 49:272–275.

———. 1993b. Orientation of bark beetles *Pityogenes chalcographus* and *Ips typographus* to pheromone-baited puddle traps placed in grids: A new trap for control of scolytids. Journal of Chemical Ecology 19:2297–2316.

———. 1993c. Simulation and equation models of insect population control by pheromone-baited traps. Journal of Chemical Ecology 19:1939–1956.

Byers, J.A. and G. Birgersson. 1990. Pheromone production in a bark beetle independent of myrcene precursor in host pine species. Naturwissenschaften 77:385–387.

Byers, J.A., G. Birgersson, J. Lofqvist, M. Appelgren, and G. Bergstrom. 1990a. Isolation of pheromone synergists of bark beetles. *Pityogenes chalcographus*. from complex insect-plant odors by fractionation and subtractive-combination bioassay. Journal of Chemical Ecology 16:861–876.

Byers, J.A., F. Schlyter, G. Birgersson, and W. Francke. 1990b. E-Myrcenol in *Ips duplicatus*: an aggregation pheromone component new for bark beetles. Experimentia (Basel) 46:1209–1211.

C

Cabral, M.T., F. Lopes, and R. de A. Sardinha. 1993. Determinaçao das causas de morte do sobreiro nos concelhos de Santiago do Cacem. Grandola e Sines. Relatorio sintese.

[Determination of the causes of death of cork oak in the municipalities of Santiago do Cacem, Grandola and Sines. Summary report]. Silva Lusitana 1:7–24.

Camacho, A.D. and J.H. Borden. 1994. Response of the western balsam bark beetle, *Dryocoetes confusus* Swaine (Coleoptera: Scolytidae), to host trees baited with enantiospecific blends of exo- and endo-brevicomin. The Canadian Entomologist 126:43–48.

Camacho, A.D., H.D. Pierce Jr., and J.H. Borden. 1993. Geometrical and optical isomerism of pheromones in two sympatric *Dryocoetes* species (Coleoptera: Scolytidae), mediates species specificity and response level. Journal of Chemical Ecology 19:2169–2182.

———. 1994. Aggregation pheromones in *Dryocoetes affaber* (Mann.) (Coleoptera: Scolytidae): Stereoisomerism and species specificity. Journal of Chemical Ecology 20:111–124.

Cameron, D.E., A.R. Stage, and N.L. Crookston. 1990. Performance of three mountain pine beetle damage models compared to actual outbreak histories. United States Department of Agriculture, Forest Service, Intermountain Research Station (Ogden, UT), Research Paper INT-435.

Campbell, J.M., M.J. Sarazin, and D.B. Lyons. 1989. Canadian beetles (Coleoptera) injurious to crops, ornamentals, stored products, and buildings. Agriculture Canada, Research Branch, Publication 1826.

Campos-O, A., B. Decazy, and E. Carrillo. 1991. Método de muestreo de broca por extracción de frutos. [Fruit extraction sampling method for borer]. Revista Cafetalera 313: 29–31.

Campos, M. and C. Lozano. 1994. Observations on the reproductive biology of two parasites of *Hylesinus varius* and *Phloeotribus scarabaeoides* (Col: Scolytidae): *Cheiropachus quadrum* (Hym: Pteromalidae) and *Dendrosoter protuberans* (Hym: Braconidae). Entomophaga 39:51–59.

Campos, M., A. Pena, and A.J. Sanchez Raya. 1994. Release of ethylene from pruned olive logs: influence on attack by bark beetles (Coleoptera, Scolytidae). Journal of Chemical Ecology 20:2513–2521.

Cane, J.H. 1992. Genetic characters for bark beetle phylogenies. Pages 14–15 *In* Jane L. Hayes and J.L. Robertson (eds.), Proceedings of a workshop on bark beetle genetics: current status of research, May 17–18, 1992, Berkeley, California. United States Department of Agriculture, Forest Service, Pacific Southwest Research Station (Albany, CA), General Technical Report PSW-GTR-138.

Cane, J.H., L.D. Merrill, and D.L. Wood. 1990. Attraction of pinyon pine bark beetle, *Ips hoppingi*, to conspecific and *I. confusus* pheromones (Coleoptera: Scolytidae). Journal of Chemical Ecology 16:2791–2798.

Cane, J.H., D.L. Wood, and J.W. Fox. 1990. Ancestral semiochemical attraction persists for adjoining populations of sibling *Ips* bark beetles (Coleoptera: Scolytidae). Journal of Chemical Ecology 16:993–1013.

Cane, J.H., M.W. Stock, D.L. Wood, and S.J. Gast. 1990. Phylogenetic relationships of *Ips* bark beetles (Coleoptera: Scolytidae): electrophoretic and morphometric analyses of the grandicollis group. Biochemical Systematics and Ecology 18:359–368.

Canganella, F., B. Paparatti, and V. Natali. 1994. Microbial species isolated from the bark beetle *Anisandrus dispar* F. Microbiological Research 149:123–128.

***Cann, F.R.** 1939. A further instance of the occurrence of a stony deposit in insect tunnels in a sample of teak (*Tectonia grandis*). Empire Forestry Journal 18:268.

Capretti, P., A. Panconesi, and C. Parrini. 1987. Dieback of Aleppo and maritime pine in plantations in northern Maremma, Italy. Monti e Boschi 38:42–46.

Carmona-Valdovinos, T.F. 1978. Some qualitative theoretical considerations regarding the mechanisms of population control in *Dendroctonus* sp. (Scolytidae). Ciencia Forestal 3:3–12.

Carpenter, F.M. 1992. Part R, Arthropoda 4, Volume 4: Superclass Hexapoda. Pages 279–655 *In* Roger L. Kaesler (ed.), Treatise on Invertebrate Paleontology. The Geological Society of America and The University of Kansas, Boulder, Colorado and Lawrence, Kansas.

Carrai, C. 1992. *Xyleborus affinis* Eichh. su tronchetti di *Dracaena* di importazione. [*Xyleborus affinis* Eichh. on the canes of imported *Dracaena*]. Informatore Fitopatologico 42: 27–30.

Carrano-Moreira, A.F. and J.H. Pedrosa-Macedo. 1994. Levantamento e análise faunística da família Scolytidae (Coleoptera) em comunidades florestais no Estado do Parana. [Survey and faunistic analysis of the family Scolytidae (Coleoptera) in five forest communities in the State of Parana]. Anais da Sociedade Entomológica do Brasil 23: 115–126.

Carrano-Moreira, A.F., C.W. Berisford, and M. Dalusky. 1993. Vertical distribution and flight periodicity of ambrosia beetles (Coleoptera: Scolytidae) associated with southern pine beetle. Pages 214–216 *In* First Congresso

Florestal Panamericano: Seventh Congresso Florestal Brasileiro. Curitiba. Paraná. Brasil. September 19–24. 1993. Sociedade Brasileira de Silvicultura and Sociedade Brasileira de Engenheiros Florestais.

Carrano-Moreira, A.F., E.N. Marques, and J.H. Pedrosa-Macedo. 1994. Efficiência de dois modelos de armadilhas de impacto e influência da altura de instalaçâo na coleta de Scolytidae (Coleoptera). [Efficiency of two window-trap models in the collection of Scolytidae (Coleoptera) and the influence of height placement]. Revista Arvore 18: 256–264.

Carreira, C. and J. Araújo. 1992. Emergência de *Platypus cylindrus* F. (Coleoptera, Platypodidae) em montado de sobro, no sul de Portugal. [Emergence of *Platypus cylindrus* F. (Coleoptera, Platypodidae) in a cork oak grove in southern Portugal. Boletim da Sociedade Portuguesa de Entomologia 139:121.

Carrillo, E., H. Ochoa and B. Decazy. 1989. Evaluación del equipo de aspersión motorizado de espalda. a bajo volumen en el combate de la broca del fruto del cafeto *Hypothenemus hampei* (Ferr.) en Guatemala. [Evaluation of motorized knapsack spraying equipment. at low volumes. for the control of coffee fruit borer *Hypothenemus hampei* (Ferr.) in Guatemala]. Turrialba 39:387–392.

Carter, D.R., J. O'Laughlin, and C. McKinney. 1991. Southern pine beetle impacts and control policy in the 1982–1986 Texas epidemic. Southern Journal of Applied Forestry 15:145–153.

Carvalho, Ed. Luna de. 1994. Coleópteros coligidos pelo Dr. Bivar de Sousa em 1983 e 1984 nos U.S.A. (Insecta. Coleoptera). Boletim da Sociedade Portuguesa de Entomologia V-9(141):269–274.

Castro, M. 1990. Avances en la investigación sobre brocas (*Hypothenemus hampei*) del fruto del cafeto (*Coffea arabica*) en Mesoamerica. [Progress in research on the coffee berry borer *Hypothenemus hampei* in Central America]. Boletin de Promecafe 49:7–12.

Cavey, J. and S. Passoa. 1993. Possible new introduction—European Spruce Bark Beetle. United States Department of Agriculture. Forest Service. Northeastern Area. Pest Alert NA-TP-11-93.

Cavey, J., S. Passoa, and D. Kucera. 1994. Screening aids for exotic bark beetles in the Northeastern United States. United States Department of Agriculture. Forest Service. Northeastern Area (Radnor. PA). NA-TP-11-94. 19 pp.

Chai, X.S., S.X. Liang, X.X. Li, S.S. Qian, and G. Wang. 1992. Bionomics of (the forest pest) *Tomicus piniperda* (L.) (in Yunnan) and its control. (In Chinese). Insect Knowledge 29: 104–105.

Chakali, G. 1992. Les insectes ravageurs du Pin d'Alep. *Pinus halepensis* Mill.. en Algérie. Mémoires de la Société royal belge d'Entomologie 35:505–509.

Chang, V.C.S. 1993. Macadamia quick decline and *Xyleborus* beetles (Coleoptera: Scolytidae). International Journal of Pest Management 39:144–148.

Chantal, C. 1992. Première mention canadienne de *Micracis suturalis* LeConte (Coleoptera: Scolytidae). [First Canadian record of *Micracis suturalis* LeConte (Coleoptera: Scolytidae)]. Fabreries 17:61–62.

Chararas, C. 1975b. Specificity of the response of monogamous and polygamous Scolytidae to attraction by frass. (In French). Comptes Rendus Hebdomadaires des Seances de l'Académie des Sciences 280D:2567–2570.

———. 1975c. The establishment of various borers on *Abies cephalonia* in Greece (Mt. Parnis. Attica). (In French). Comptes Rendus des Seances de l'Académie d'Agriculture de France 61:413–418.

Chararas, C., C. Ducauze, and C. Revolon. 1978a. Comparative study of the attraction of certain conifers for various Scolytidae (Coleoptera). (In French). Comptes Rendus Hebdomadaires des Seances de l'Académie des Sciences 286D:343–346.

———. 1978b. Olfactory adaption and "allotrophic" behaviour in some Scolytidae specific to conifers. (In French). Comptes Rendus Hebdomadaires des Seances de l'Académie des Sciences 287D:285–288.

Cheniclet, C. 1987. Effects of wounding and fungus inoculation on terpene producing systems of maritime pine. (In French). Journal of Experimental Botany 38:1557–1572.

Cherif, R. and A. Trigui. 1990. *Ruguloscolytus amygdali* Guerin. scolyte des arbres fruitiers a Noyau dans les regions du centre-sud de la Tunisie. [*Ruguloscolytus amygdali* Guerin. scolytid of fruit trees in Noyau in the mid-southern regions of Tunisia]. Annales de l'Institut National de la Recherche Agronomique de Tunisie 63(1. Note 1).

Cheskis, B.A., A.M. Moiseenkov, M.Ya. Bichevskis, G.E. Ozols, and K.V. Lebedeva. 1991. Synthesis and biological activity of Z-2.6-dimethyloctadien-5.7-ol-4. component of the frass produced by the bark beetle *Ips typographus*. (In Russian). Agrokhimiya 8: 118–120.

Chey Vun Khen. 1986. A preliminary report on insects infesting the fruits of some forest-trees. Malaysia. Forest Research Centre (Sandakan. Sabah) Publication 27.

Chhetri, D.B. 1991. History of bark beetle outbreak in western Bhutan. Bhutan Department of Forestry (Tsenden Thimphu. Bhutan). vol. 3:68–72

Chkoidze, M.S. and D.G. Zharkov. 1989. The haematological method of forecasting. (In Russian). Zashchita Rastenii (Moscow) 1989(1):43.

Chlodny, J. 1982. Remarks on the threat of insect pests to forest stands and reforestation in the Upper Silesian industral region. (In Polish). Sylwan 126:19–26.

Christensen, K.M., T.G. Whitham, and P. Keim. 1992. Patterns of genetic introgression associated with herbivory in hybrid pinyon pines. Bulletin of the Ecological Society of America 73 (2 suppl.):140.

Christiansen, E. 1989. Bark beetles and air pollution. Pages 101–107 *In* Air pollution as stress factor in the Nordic forests. Meddelser fra Norsk Institutt for Skogforskning 42.

———. 1991. *Ips typographus* and *Ophiostoma polonicum* versus Norway spruce: joint attack and host defense. Pages 321–334 *In* Y.N. Baranchikov, W.J. Mattson, F.P. Hain and T.L. Payne (eds.). Forest insect guilds: Patterns of interactions with host trees. United States Department of Agriculture. Forest Service. Northeastern Forest Research Station (Radnor. PA). General Technical Report NE-153.

———. 1992. After-effects of drought did not predispose young *Picea abies* to infection by the bark beetle-transmitted blue-stain fungus *Ophiostoma polonicum*. Scandinavian Journal of Forest Research 7:557–569.

Christiansen, E. and G. Fjone. 1993. Pruning enhances the susceptibility of *Pices abies* to infection by the beetle-transmitted Blue-stain fungus. *Ophiostoma polonicum*. Scandinavian Journal of Forest Research 8:235–245.

Christiansen, E. and H. Solheim. 1990. The bark beetle-associated blue-stain fungus *Ophiostoma polonicum* can kill various spruces and Douglas fir. European Journal of Forest Pathology 20:436–446.

Ciesla, W.M. 1992. Introduction of bark beetles and wood borers into China in coniferous logs from North America. FAO Plant Protection Bulletin 40:154–158.

———. 1993. Recent introductions of forest insects and their effects: A global overview. FAO Plant Protection Bulletin 41:3–13.

Clark, E.W. and C.L. Mills. 1978. Effects of the season of the year and the soil on the amounts of soluable amino N and soluable carbohydrates in the inner bark of *Pinus taeda*. Florestal (Brasil) 9:40–44.

Clark, E.W. and J.A. Richmond. 1977. Variations of free triglyceride fatty acids in the phloem of *Pinus taeda* infected by *Ceratocystis minor*. Turrialba 27:377–383.

Clark, S.F. and E.A. Hebb. 1951. Mortality in pine stands during first year after logging. Southern Lumberman 183(2297):256.258.

Classen, A. and H.D. Scharf. 1990. Darstellung von 3-keto-derivaten des frontalin. des endo- und exo-brevicomen. [Preparation of 3-keto derivatives of frontalin. endo- and exo-brevicomin]. Liebigs Annalen der Chemie 1990(1): 123–124.

Cobb, F.W., Jr. 1992. The role of predisposition by diseases in the management of bark beetles. Page 157 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver. Colorado. March 25–28. 1991. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-294.

Cobos-Suarez, J.M. and M.M. Ruiz-Urrestarazu. 1990. Problemas fitosanitarios de la especie *Pinus radiata* D. Don en España. con especial referencia al País Vasco. [Phytosanitary problems of the species *Pinus radiata)* D. Don in Spain. with special references to the Basque country]. Boletin de Sanidad Vegetal. Plagas 16:37–53.

Cochran, P.H., J.M. Geist, D.L. Clemens, R.R. Clausnitzer, and D.C. Powell. 1994. Suggested stocking levels for forest stands in northeastern Oregon and southeastern Washington. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). Research Note PNW-513:1–21.

Coffin, J. and P. Téocchi. 1991. Description et biologie d'une espèce nouvelle de *Cisurgus*: *C. seselii* (Coleoptera: Scolytidae). [Description and biology of a new species of *Cisurgus*: *C. seselii* (Coleoptera: Scolytidae)]. Bulletin mensuel de la Société linnéene de Lyon 60:157–165.

Cole, D.M. 1975. Culture of immature Lodgepole pine stands for timber objectives. Pages 536–555 *In* Management of Lodgepole Pine Ecosystems. Washington State University Cooperative Extension Service. Pullman. WA.

Colineau, B. and F. Lieutier. 1994. Production of Ophiostoma-free adults of *Ips sexdendatus* Boern. (Coleoptera: Scolytidae) and comparison with naturally contaminated adults. The Canadian Entomologist 126:103–110.

Connell, M. 1975. Succession of infestation in illipe nuts in Sarawak-an example of a cash crop problem. Pages 30–40 *In* Proceedings of the First International Working Conference on Stored-Product Entomology. Savannah, Georgia. October 7–11, 1974. United States Department of Agriculture. Agricultural Research Service. Stored-Product Insects Research and Development Laboratory and Department of Entomology. Georgia University.

Cook, S.P. and F.P. Hain. 1992a. Dispersal and flight activity of bark beetles in North Carolina. Page 167 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver, Colorado. March 25–28. 1991. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-294.

———. 1992b. The influence of self-marking with flourescent powders on adult bark beetles (Coleoptera: Scolytidae). Journal of Entomological Science 27:269–279.

Cook, S.P., F.P. Hain, and P.B. Nappen. 1990. Inability to rear bark beetles (Coleoptera: Scolytidae) on tissue-cultured host pine callus. Journal of Entomological Science 25: 204–206.

Copestake, D.R. 1994. Some interesting beetles found during 1993. Pages 168–169 *In* 1993 Annual Exhibition, Imperial College, London SW7-30 October 1993. British Journal of Entomology and Natural History 7:145–180.

Coppedge, B.R., J.M. Jones, G.W. Felton, and F.M. Stephen. 1994. Examination of midgut proteinases of adult Southern Pine Beetle (Coleoptera: Scolytidae). Journal of Entomological Science 29:457–465.

Coppedge, B.R., F.M. Stephen, and G.W. Felton. 1994. Variation in size and lipid content of adult southern pine beetles, *Dendroctonus frontalis* Zimmermann (Coleoptera: Scolytidae) in relation to season. Journal of Entomological Science 29:570–579.

Correa, M.G.M. and G.Z. Bermudez. 1991. Determinacion del sexo en *Dendroctonus mexicanus* Hopkins (Coleoptera, Scolytidae), a traves del analisis de characteres morfologicos abdominales y cefalicos. [Determination of sex in *Dendroctonus mexicanus* Hopkins (Coleoptera, Scolytidae), a study of analysis of abdominal and cephalic morphological characters]. Acta Zoologica Mexicana 46: 13–21.

Correa López, A. de J., E. Prado Beltran, J. Valdez Carrasco, and A. Equihua Martinez. 1992. Genitales de las especies Mexicanas del género *Ips* DeGeer (Coleoptera: Scolytidae). Folia Entomológica Mexicana 85:47–63.

***Costa, E.C., J.B. de Moura, and E.N. Marques.** 1988. Observaçoes sobre madeira cortada e mantida no ecossistema forestal. [Observations on cut wood maintained in the forest ecosystem]. Revista de Centro de Ciências Rurasis. Universidade Federal de Santa Maria 18:239–247.

Couillien, D. and J.-C. Gregoire. 1994. Take-off capacity as a criterion for quality control in mass-produced predators. *Rhizophorus grandis* (Col., Rhizophagidae) for the control of bark-beetles. *Dendroctonus micans* (Col., Scolytidae). Entomophaga 39:385–395.

Coulibaly, B. 1993. Les Dolichopodidae (Diptera) dans le contrôle biologique de certaines insectes nuisibles des écosystemes forestiers. [Dolichopodidae (Diptera) used in the biological control of certain harmful insects affecting forestry ecosystems]. Insect Science and its Application 14:85–87.

Coulson, R.N. 1992a. IPM of the southern pine beetle. Page 122 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver, Colorado. March 25–28. 1991. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-294.

———. 1992b. Modeling the application of knowledge for southern pine beetle IPM. Page 139 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver, Colorado. March 25–28. 1991. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-294.

***Covassi, M. and L. Masutti.** 1980. Generalità sull'entomofauna degli olmi con particolare riguardo ai coleotteri scolitidi vettori della grafiosi. Informatore Fitopatologico 30(1): 19–26.

Cox, M.L. 1990. Coffee berry borer *Hypothenemus hampei* (Ferrari), confirmed in India. FAO Plant Protection Bulletin 38:217–218.

Croisé, L. and F. Lieutier. 1993. Effects of drought on the induced defence reaction of Scots pine to bark beetle-associated fungi. Annales des Sciences Forestières 50:91–97.

Croteau, R. 1991. Induced pinene biosynthesis in conifer defense. Abstracts of Papers, American Chemical Society 201(1–2):ORGN 312.

Culik, M.P. and J.E. Weaver. 1994. Seasonal crawling activity of adult root-feeding insect pests (Coleoptera: Curculionidae: Scolytidae) of red clover. Environmental Entomology 23:68–75.

D

Dahlsten, D.L. 1992. Evidence for microbial production of kairomones for bark beetle parasitoids. Page 30 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver, Colorado, March 25–28, 1991. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

Dahlsten, D.L., W.A. Cooper, D.L. Rowney, and P.K. Kleintjes. 1990. Quantifying bird predation of arthropods in forests. Pages 44–52 *In* M.L. Morrison et al. (eds.). Studies in avian biology, No 13. Avian foraging: theory, methodology, and applications. International symposium, Asilomar, California, December 18–19, 1988. Cooper Ornithological Society: Los Angeles, California.

Dajoz, R. 1990. Coléoptères et Diptères du Pin à crochets dans les Pyrénées-Orientales. Étude biogéographique et écologique. [Coleoptera and Diptera of the mountain pine in the eastern Pyrenees. Biogeographical and ecological study]. L'Entomologiste 46:253–270.

———. 1992. Une nouvelle espèce nord-américaine du genre *Narthecius*, description et données sur sa biologie (Coleoptera, Cucujidae). [A new North American species of the genus *Narthecius*, description and data on its biology (Coleoptera, Cucujidae)]. Bulletin de la Société entomologique de France 97:257–263.

———. 1993. Ecologie et biogéographie des peuplements de Coléoptères associés à douze espèces de Scolytidae dans le sud de la Californie. [Ecology and biogeography of the beetles associated with twelve species of Scolytidae in southern California]. Bulletin de la Société entomologique de France 98: 409–424.

Dale, V.H., L.K. Mann, R.J. Olson, D.W. Johnson, and K.C. Dearstone. 1990. The long-term influence of past land use on the Walker Branch forest. Landscape Ecology 4: 211–224.

Dallara, P.L. 1993. Interrelationships among twig beetles (Scolytidae: *Pityophthorus* spp.), pitch canker disease and conifers in central coastal California. Page 44 *in* D.H. Adams, J.E. Rios, and A.J. Storer (eds.). Proceedings of the 42nd Annual Meeting of the California Forest Pest Council, Rancho Cordova, CA, Nov. 17–18, 1993. Appendix XLIV-XLV.

Dalusky, M.J., C.W. Berisford, and P.B. Bush. 1990. Efficacy of three injected chemical systems for the control of the southern pine beetle. Research Division, Georgia Forestry Commission. Georgia Forest Research Paper 83.

***Dariichuk, Z.S.** 1986. Settlement of weakened by rot Norway spruce trees in the Carpathian foothills. (In Russian). Lesovedenie 1986(6): 86–89.

Das, S.C. and B. Gope. 1985. Palliative control of tea chest panel borer by heating. Two and a Bud 32(1–2):43–44.

***Day, E.** 1991. Bark Beetles. Virginia Polytechnic Institute and State University (Blacksburg, VA). Virginia Cooperative Extension Service. Entomology Fact Sheet 444–216.

Dearborn, R.G. and C.P. Donahue. 1993. The Forest Insect Survey of Maine. An annotated list of insects collected and recorded by the Maine Forest Service. Order Coleoptera. Maine Forest Service, Insect and Disease Division, Technical Report No. 32.

Dedek, W. and J. Pape. 1990. Umweltschonendes Abschoopfen von Borkenkäfern in der DDR. [Environment-friendly control of bark beetles in the German Democratic Republic]. Allgemeine Forstzeitschrift 1990(14–15): 357–359.

Dedek, W., J. Pape, and H.-J. Körner. 1991. Umweltgerechter Pflanzenschutz gegen *Ips typographus* durch Kombination des Systeminsektizids Methamidophos im Saftstrom verfahren an der Fichte mit Pheromonen. [Control of *Ips typographus* by combining pheromones with the systemic insecticide methamidophos using the sapstream method on spruce]. Pages 118–125 *In* Alfred Wulf and R. Kehr, Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integrierten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

de Groot, P. 1986. Mortality factors of jack pine, *Pinus banksiana* Lamb., strobili. Pages 39–52 *In* A. Roques, Proceedings of the 2nd Conference of the Cone and Seed Insects Working Party S2.07-01, September 3–5, 1986, Briancon, France. Station de Zoologie Forestière, Olivet, France.

———. 1990. The taxonomy, life history, and control of *Conophthorus* (Coleoptera: Scolytidae) in eastern North America. Pages 37–46

In R.J. West (ed). Proceedings—Cone and Seed Pest Workshop. 4 October 1989. St. John's. Newfoundland. Forestry Canada. Newfoundland and Labrador Region (St. John's. Newfoundland). Information Report N-X-274.

———. 1991. Cone beetles in the boreal forest: at the cutting edge (Coleoptera: Scolytidae: *Conophthorus* spp.). Proceedings of the Entomological Society of Ontario 122:87–100.

de Groot, P. and J.H. Borden. 1991. Life history of the jack pine tip beetle. *Conophthorus banksianae* McPherson (Coleoptera: Scolytidae): implications for species status. The Canadian Entomologist 123:211–217.

de Groot, P. and T.J. Ennis. 1990. Cytotaxonomy of *Conophthorus* (Coleoptera: Scolytidae) in eastern North America. The Canadian Entomologist 122:1131–1135.

de Groot, P. and R.A. Fleming. 1994. Analysis and modelling of cohort life tables of jack pine seed cones. Canadian Journal of Forest Research 24:1579–1592.

———. 1992. Host acceptance behaviour of the jack pine tip beetle. *Conophthorus banksianae* and the red pine cone beetle. *C. resinosae*. Entomologia Experimentalis et Applicata 65: 149–155.

de Groot, P., G.T. Harvey, and P.M. Roden. 1992. Genetic divergence among eastern North American cone beetles *Conophthorus* (Coleoptera: Scolytidae). The Canadian Entomologist 124:189–199.

de Groot, P., G.L. De Barr, G.O. Birgersson, H.D. Pierce, J.H. Borden, Y.C. Berisford, and C.W. Berisford. 1991. Evidence for a female-produced pheromone in the white pine cone beetle. *Conophthorus coniperda* (Schwarz), and in the red pine cone beetle. *C. resinosae* Hopkins (Coleoptera: Scolytidae). The Canadian Entomologist 123: 1057–1064.

Delate, K.M., J.W. Armstrong, and V.P. Jones. 1994. Postharvest control treatments for *Hypothenemus obscurus* (F.) (Coleoptera: Scolytidae) in macadamia nuts. Journal of Economic Entomology 87:120–126.

***Delobel, A. and M. Tran.** 1993. The Coleoptera of food stuffs originating in hot areas. Les Coléoptères des denrées alimentaires entreposées dans les régions chaudes. Faune Tropicale No. 32. 424 pp.

Delorme, J.D. and T.L. Payne. 1990. Antennal olfactory responses of black turpentine beetle. *Dendroctonus terebrans* (Olivier), to bark beetle pheromones and host terpenes. Journal of Chemical Ecology 16:1321–1329.

Delorme, L. and F. Lieutier. 1990. Monoterpene composition of the preformed and induced resins of Scots pine. and their effect on bark beetles and associated fungi. European Journal of Forest Pathology 20: 304–316.

Deneubourg, J-L., J-C. Grégoire, and E. Le-Fort. 1990. Kinetics of larval gregarious behavior in the bark beetle *Dendroctonus micans* (Coleoptera: Scolytidae). Journal of Insect Behavior 3:169–182.

Develice, R.L., W.E. Queitsch, and E.H. Holsten. 1994. Undergrowth vegetation succession following beetle-induced tree mortality and fire in southcentral Alaska. Bulletin of the Ecological Society of America 75:53.

Devlin, D.R. and J.H. Borden. 1994. Efficacy of antiaggregants fot the pine engraver. *Ips pini* (Coleoptera: Scolytidae). Canadian Journal of Forest Research 24:2469–2476.

Dhanam, M., T. Raju, and P.K.Bhat. 1992. *Tetrastichus* sp. nr. *xylebororum* Domenichini (Hymenoptera: Eulophidae), a natural enemy of *Xyleborus compactus* (Eichhoff). Journal of Coffee Research 7:127–128.

***Dhanarajan, G.** 1977. Degradation of wood by insects and other organisms in Malaysia. Pages 287–299 *In* C.B. Sastry. P.B.L. Srivastava. and A. Manap Ahmad (eds.), A new era in Malaysian forestry. Universiti Pertanian Malaysia Press. Serdang. Selangor. Malaysia.

Di, D.H., G. Ueunten, A. Yamaguchi, M.A. Nagao, A.H. Hara, and W.T. Nishijima. 1991. Quick tree decline: a new problem of macadamia in Hawaii. HortScience 26:560–561.

Dickens, J.C., R.F. Billings, and T.L. Payne. 1992. Green leaf volatiles interrupt aggregation pheromone response in bark beetles infesting southern pines. Experimentia (Basel) 48:523–524.

Dickens, J.C., E.B. Jang, D.M. Light, and A.R. Alford. 1990. Enhancement of insect pheromone responses by green leaf volatiles. Naturwissenschaften 77:29–31.

Dimitri, L., U. Gebauer, R. Lösekrug, and O. Vaupel. 1992. Influence of mass trapping on the population dynamic and damage-effect of bark beetles. Journal of Applied Entomology 114:103–109.

Dippel, C. 1991. Zur Biologie des Borkenkäferprädators *Nemosoma elongatum*. [The biology of the bark beetle predator *Nemosoma elongatum*]. Naturwissenschaften 78:473–474.

Dixon, E.A., H. Wieser, H.F. Cerezke, E. Begin, G. Gries, R.A. Werner, and A.T. Whitehead. 1992. 1-methylcyclohex-2-enol. 3-methyl-cyclohex-22-enol and 3-methyl-cyclohex-2-enone as pheromones in three species of *Dendroctonus* bark beetles.

Page 171 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver, Colorado. March 25–28. 1991. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-294.

Doggett, C.A. and D.R. Tweed. 1994. Geographical intensity of southern pine beetle infestations. Southern Journal of Applied Forestry 18:145–146.

Doidge, D. and J. Muir. 1991. Armillaria root disease survey at Williams Lake B.C. Canadian Plant Disease Survey 71:129.

Dolmans, M. and J.-C. Grégoire. 1992. Utilisation d'un Système d'Information Géographique (SIG) pour la gestion des populations de *Dendroctonus micans* (Kug.) (Coleoptera. Scolytidae) dans le sud du Massif Central. [Using a geographic information system for the management of populations of *Dendroctonus micans* (Kug.) (Coleoptera. Scolytidae) in the southern massif central]. Mémoires de la Société royal belge d'Entomologie 35: 517–521.

***Dominguez García-Tejero, F.** 1989. Plagas y enfermedades de las plantas cultivadas. Ed. Mundi Prensa.

Dominik, J. 1986. Observations on the choice of breeding substrate by several xylophagous insects. Sylwan 130:25–28.

Dominik, J. and S. Kinelski. 1979. Studies on the duration of effective protection of unpeeled Scots pine logs by several insecticides. Sylwan 123:13–19.

———. 1985. Studies on the effectiveness of some insecticides containing synthetic pyrethroids for protecting timber from certain wood-boring insects. Sylwan 129:67–70.

Dominik, J. and T. Litwiniak. 1983. Attempt of verifying opinion in alluring effect of recent forest fire sites on *Hylobius abietis* L. and on some other insect-pests of forest cultures. Annals of the Warsaw Agricultural University. Forestry and Wood Technology 30:7–12.

Dominik, J., S. Kinelski, and A. Rutkiewicz. 1988. Results of further studies on the effectiveness of synthetic pyrethroids for disinfestation and protection of unbarked logs against insects. Sylwan 132:45–48.

Donaubauer, E., K.E. Schedl, and K. Egger. 1978. 80th birthday of Prof. Karl E. Schedl. Centralblatt für das Gesamte Forstwesen 95: 57–63.

Downing, K. and D.L. Bartos. 1991. AI methods in support of forest science: Modeling endemic level mountain pine beetle population dynamics. AI Applications In Natural Resource Management (Moscow. ID) 5:105–115.

Drew, I.K. 1992. Borers, termites and the householder in Queensland. Department of Forestry, Queensland. Advisory Leaflet No. 16.

Drumont, A., R. González, N. de Windt, J-C. Grégoire, and M. de Proft. 1991. Controle integre d'*Ips typographus* (Col., Scolytidae) en Belgique. [Integrated control of *Ips typographus* (Col., Scolytidae) in Belgium]. Parasitica 47:113–128.

Drumont, A., R. González, N. de Windt, J-C. Grégoire, M. de Proft, and E. Seutin. 1992. Semiochemicals and the integrated management of *Ips typographus* (L.) (Col., Scolytidae) in Belgium. Journal of Applied Entomology 114:333–337.

Dubbel, V. 1991. Alternativen beim Polterschultz gegen den Gestreiften Nutzholzborkenkäfer. [Alternatives for the protection of logs piles against the striped ambrosia beetle]. Pages 70–79 *In* Alfred Wulf and R. Kehr (eds.). Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integreiten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

———. 1992. The effectiveness of pine oil as a repellent against the striped ambrosia beetle *Trypodendron lineatum* (Col., Scolytidae). Journal of Applied Entomology 114:91–97.

Dubreuil, S.H., S. Tunnock, and O.J. Dooling. 1982. Bark beetle history and root disease of the Hungary Horse District, Flathead National Forest. United States Department of Agriculture. Forest Service. Northern Region (Missoula, MT). State and Private Forestry, Report 82-18.

Duda, S. 1981. Important pests of Scots pine within range of pollution from the Legnica-Glogow copper complex. Sylwan 125: 133–139.

***Dull, C.W.** 1981. Loran-C navigation. Resources Evaluation Newsletter 8:1–2.

Dunn, J.P. 1992. Dynamics of bark beetle-conifer interactions with the environment: challenges for the future. Page 75 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver, Colorado. March 25–28. 1991. United States Department of Agriculture, Forest Service. Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

Dunn, J.P. and P.L. Lorio, Jr. 1992a. Ecophysiological parameters associated with loblolly pine resistance against the southern pine beetle. Page 165 *In* Douglas C. Allen and L.P.

Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver. Colorado. March 25–28. 1991. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-294.

———. 1992b. Effects of bark girdling on carbohydrate supply and resistance of loblolly pine to southern pine beetle (*Dendroctonus frontalis* Zimm.) attack. Forest Ecology and Management 50:317–330.

———. 1993. Modified water regimes affect photosynthesis. xylem water potential. cambial growth. and resistance of juvenile *Pinus taeda* L. to *Dendroctonus frontalis* (Coleoptera: Scolytidae). Environmental Entomology 22: 948–957.

Dunn, J.P. and D.A. Potter. 1991. Synergistic effects of oak volatiles with ethanol in the capture of saprophagous wood borers. Journal of Entomological Science 26:425–429.

du Toit, P.F. 1975. Aspects of the bio-ecology and control of the bark-beetle *Hylastes angustatus* Herbst (Coleoptera: Scolytidae). Forestry in South Africa 17:37–43.

E

Eav, B.B., R.D. Dillman, and W.B. White. 1984. High-altitude photography for inventories of mountain pine beetle damage. Journal of Forestry 82:175–177.

Eck, R. 1990a. Die parasitischen Hymenopteran des *Ips typographus* in der Phase der Progradation Artenspektrum und Parasitierungsraten in einigen Waldgebieten der ehemaligen DDR. [The parasitic Hymenoptera associated with *Ips typographus* in the period of progradation spectrum of species and mortality rates by parasites in some forests of the former GDR]. Entomologische Abhandlungen (Dresden) 53:151–178.

———. 1990b. Zur Bionomie einiger bei Borkenkäfern (besonders bei *Ips typographus*) parasitierenden Hymenopteren (Insecta. Hymenoptera: Braconidae. Chalcidoidea). [Bionomic notes on some parasitic Hymenoptera associated with bark beetles, especially with *Ips typographus* (Insecta. Hymenoptera: Braconidae. Chalcidoidea)]. Faunistische Abhandlungen (Dresden) 17:115–126.

Eckberg, T.B., J.M. Schmid, S.A. Mata, and J.E. Lundquist. 1994. Primary focus trees for the mountain pine beetle in the Black Hills. United States Department of Agriculture, Forest Service. Rocky Mountain Forest and Range Experiment Station (Fort Collins. CO). Research Note RM-RN-531.

Eckloff, W. and W. Ziegler. 1991. Über den Wert toter Bäume in der Waldlebensgemeinschaft. Forstarchiv 62:105–107.

***Edwards, D.W.** 1982. Pencil streak. stain and decay in *Eucalyptus* and *Syncarpia* in New South Wales. Forestry Commission of New South Wales. Research Paper 1.

Eidmann, H.H., A. Lindelow, and B. Solbreck. 1977. Black pine beetles in Swedish conifer plantations. Sveriges Skogvaardsforbunds Tidskrift 75:499–508.

———. 1992. Impact on bark beetles on forests and forestry in Sweden. Journal of Applied Entomology 114:193–200.

Eidmann, H.H., E. Kula, and A. Lindelow. 1991. Host recognition and aggregation behavior of *Hylastes cunicularius* Erichson (Col.. Scolytidae) in the laboratory. Journal of Applied Entomology 112:11–18.

Eikenbary, R.D., K. Pinkston, and D. Arnold. 1994. Field key to beetles in pines. Oklahoma State University (Stillwater. OK). Cooperative Extension Service. OSU Extension Facts 7164.

Eldridge, R.H. and J.A. Simpson. 1987. Development of contingency plans for use against exotic pests and diseases of trees and timber. 3. Histories of control measures against some introduced pests and diseases of forests and forest products in Australia. Australian Forestry 50:24–36.

Elias, S.A. 1992a. Late Quaternary zoogeography of the Chihuahuan Desert insect fauna. based on fossil records from packrat middens. Journal of Biogeography 19:285–297.

———. 1992b. Late Quaternary beetle faunas of southwestern Alaska: Evidence of a refugium for mesic and hygrophilous species. Arctic and Alpine Research 24:133–144.

———. 1994. Quaternary Insects and their Environments. Smithsonian Institution Press. Washington D.C. 284 pp.

Epila-Otara, J.S. and C.A. Triplehorn. 1990. Mechanoreceptors on the male genitalia of Platypodidae (Coleoptera): a pregamous isolation mechanism? Journal of African Zoology 104:345–350.

Equihua-Martínez, A. 1992. Coleópteros Scolytidae atraídos a trampas NTP-80 en el Soconusco. Chiapas. México. Folia Entomológica Mexicana 84:55–66.

Erasmus, M.J. and S.L. Chown. 1994. Host location and aggregation behaviour in *Hylastes angustatus* (Herbst) (Coleoptera: Scolytidae). African Entomology 2:7–11.

Evans, H.F. and N.J. Fielding. 1994. Integrated management of *Dendroctonus micans* in the UK. Forest Ecology and Management 65: 17–30.

Evans, H.F. and C.J. King. 1988. *Dendroctonus micans* guidelines for managers. United Kingdom Forestry Commission, Research Information Note 128.

F

Fairhurst, C.P. and P.T. Harding. 1992. Bark beetles (Col., Scolytidae) attracted to domestic washing compounds. Entomologist's Monthly Magazine 128:196.

Fang, S.Y., A. Roques, and J.H. Sun. 1988. Report on the survey of cone and seed insects in conifer forest in Northeast China. Journal of the North East Forestry University (China) 16: 91–98.

Faucheux, M.J. 1989. Morphology of the antennal club in the male and female bark beetles *Ips sexdentatus* Boern. and *I. typographus* (L.) (Coleoptera: Scolytidae). Annales des Sciences Naturelles, Zoologie, Paris 10:231–243.

———. 1994. Distribution and abundance of antennal sensilla from two populations of the pine engraver beetle, *Ips pini* (Say) (Coleoptera, Scolytidae). Annales des Sciences Naturelles Zoologie et Biologie Animale 15: 15–31.

Favaro, A. and A. Battisti. 1993. Observations on the elm bark beetle *Scolytus pygmaeus* (Fabricius) (Coleoptera Scolytidae) as possible vectors of the fungus *Ophiostoma ulmi* (Schwarz) Nannfeldt. Redia 76:459–466.

Feldhege, M.R. 1992. Rearing techniques and aspects of biology of *Phymastichus coffea* (Hymenoptera: Eulophidae), a recently described endoparasitoid of the coffee berry borer, *Hypothenemus hampei* (Coleoptera: Scolytidae). Café, Cacao, Thé 36:45–54.

Fenton, G.R. 1951. Regeneration of *Pinus radiata* D. Don following fire. New Zealand Forest Service, Forest Research Notes 1(4): 1–10.

Fernandes, G.W. 1990. Hypersensitivity: A neglected plant resistance mechanism against insect herbivores. Environmental Entomology 19:1173–1182.

Fernandez Fernandez, M. de L.M. 1992. Contribution à la connaissance des Scolytides (Col., Scolytidae) des Asturies, de la Cantabrie, du León (Espagne) et de leurs principales plantes hôtes. [Contribution to the knowledge of Scolytidae (Col., Scolytidae) of Asturias, Cantabria and Leon, Spain and of their principal host plants]. Mémoires de la Société royal belge d'Entomologie 35: 523–527.

Ferreira, M.C. 1992a. Contribuiçâo para um melhor conhecimento de *Platypus cylindrus* F. (Coleoptera, Platypodidae). [Contribution to a better knowledge of *Platypus cylindrus* F. (Coleoptera, Platypodidae)]. Boletim da Sociedade Portuguesa de Entomologia 139:224.

———. 1992b. Contribuiçâo para o conhecimento do género *Pityogenes* Bedel em Portugal (Coleoptera: Scolytidae). [contributions to the knowledge of the genus *Pityogenes* Bedel in Portugal (Coleoptera: Scolytidae). Boletim da Sociedade Portuguesa de Entomologia, Suplemento 3:69–81.

***Ferreira, M.C. and G.W.S. Ferreira.** 1988. Impacto do fogo nos escolitideos associados com o pinheiro bravo. [The effect of fire on Scolytidae associated with *Pinus pinaster*]. Pages 161–166 *In* A.A.M. Alves & J.C. Velez (eds.). Simposio sobre a floresta e o ordenamento do espaco de montanh a. Universidade de Tras-os-Montese Alto Douro. Vila Real, Portugal.

Ferrell, G.T., W.J. Otrosina, and C.J. DeMars, Jr. 1993. Assessing the susceptibility of white fir to the fir engraver, *Scolytus ventralis* LeC. (Coleoptera: Scolytidae), using fungal inoculation. The Canadian Entomologist 125: 895–901.

———. 1994. Predicting susceptibility of white fir during a drought-associated outbreak of the fir engraver, *Scolytus ventralis*, in California. Canadian Journal of Forest Research 24: 302–305.

ffrench-Constant, R.H., J.C. Steichen, and L.O. Brun. 1994. A molecular diagnostic for endosulfan insecticide resistance in the coffee berry borer *Hypothenemus hampei* (Coleoptera: Scolytidae). Bulletin of Entomological Research 84:11–15.

Fielding, N.J. 1992. *Rhizophagus grandis* as a means of biological control against *Dendroctonus micans* in Britain. UK Forestry Commission Research Division, Research Information Note 224.

Fielding, N.J., T. O'Keefe, and C.J. King. 1991. Dispersal and host-finding capability of the predatory beetle *Rhizophagus grandis* Gyll. (Col., Rhizophagidae). Journal of Applied Entomology 112:89–98.

Fielding, N.J., H.F. Evans, J.M. Williams, and B. Evans. 1991. Distribution and spread of the great European spruce bark beetle, *Dendroctonus micans*, in Britain—1982 to 1989. Forestry 64:345–358.

Fielding, N.J., B. Evans, R. Burgess, and H. Evans. 1994. Protected Zone surveys in Great Britain for *Ips typographus, I. amitinus, I. duplicatus* and *Dendroctonus micans*. Great Britain. Forestry Authority Research Division, Research Information Note 253.

Filho, A.B., B.P.B. Cruz, and J. Abrahao. 1989. Manifestaçao tardia da broca do cafe. *Hypothenemus hampei* (Ferrari. 1867). (Coleoptera: Scolytidae). [Late occurrence of coffee borer. *Hypothenemus hampei* (Ferrari. 1867). (Coleoptera: Scolytidae)]. Biologico 55:23–24.

Filip, G.M. 1994. Forest health decline in central Oregon: A 13-year case study. Northwest science 68:233–340.

Filip, G.M. and T.D. Schowalter. 1993. Synopsis. Pages 231–238 *In* T.D. Schowalter and G.M. Filip (eds.). Beetle-pathogen interactions in conifer forests. Academic Press: London.

Fiorentino, D.C. and L. Diodato de Medina. 1991. Breve panorama de las plagas entomologicas forestales Argentinas. [Brief survey of the forest insect pests of Argentina]. Investigacion Agraria. Sistemas y Recursos Forestales (Instituto Nacional de Investigacion y Tecnologia Agraria y Alimentaria. Madrid) 1991:181–190.

Fiorentino, D.C., M.C. Iturre de Toscano, and G.E. Darchuk de Durant. 1988. Inventario de insectos forestales en plantaciones de *Pinus* y *Eucaliptus* en Santiago del Estero (Republica Argentina). VI Congreso Forestal Argentino. Santiago del Estero. 16–20 de Agosto de 1988. 10 pp (mimiographed).

Fitzgerald, J.W., R.N. Coulson, P.E. Pulley, R.O. Flamm, F.L. Oliveria, K.M. Swain and D.B. Drummond. 1994. Suppression tactics for *Dendroctonus frontalis* Zimmermann (Coleoptera: Scolytidae): An examination of the occurrence of infestations adjacent to treatment sites. Journal of Economic Entomology 87:417–425.

Fitzgerald, T.J. 1990. Pine bark beetles. Washington State University Cooperative Extension Service. Extension Bulletin 0936 (rev.).

Flamm, R.O., P.E. Pulley, and R.N. Coulson. 1993. Colonization of disturbed trees by the southern pine beetle guild (Coleoptera: Scolytidae). Environmental Entomology 22:62–70.

Flint, J.H. 1992. Entomological reports for 1987–1989—Coleoptera: Carabidae. Hydrophilidae. Cerambycidae. Platypodidae. Naturalists (Leeds) 117:69–71.

Fordyce, D.K. 1984. Models for southern pine beetle activity. Forestry Abstracts 45:400.

Forsse, E. 1991. Flight propensity and diapause incidence in five populations of the bark beetle *Ips typographus* in Scandinavia. Entomologia Experimentalis et Applicata 61:53–57.

Forster, B. 1993. Entwicklung der Borkenkäfersituation in den Schweizer Sturmschadengebieten. [Development of the bark beetle situation in the Swiss storm- damage areas]. Schweizeriches Zeitschrift für Forstwesen 144:767–776.

Fowler, G.W. and W.G. O'Regan. 1974. One-sided truncated sequential t-test: application to natural resource sampling. United States Department of Agriculture. Forest Service. Pacific Southwest Forest and Range Experiment Station (Berkeley. CA). Research Paper PSW-100.

Fox, J.W., D.L. Wood, and J.H. Cane. 1991. Interspecific pairing between two sibling *Ips* species (Coleoptera: Scolytidae). Journal of Chemical Ecology 17:1421–1435.

Fox, J.W., D.L. Wood, and C.S. Koehler. 1990. Distribution and abundance of engraver beetles (Scolytidae: *Ips* species) on Monterey pines infected with pitch canker. The Canadian Entomologist 122:1157–1166.

Fox, J.W., D.L. Wood, C.S. Koehler, and S.T. O'Keefe. 1991. Engraver beetles (Scolytidae: *Ips* species) as vectors of the pitch canker fungus. *Fusarium subglutinans*. The Canadian Entomologist 123:1355–1367.

Fox, J.W., M.E. Schultz, K. Hoover, D.L. Wood, and T.R. Gordon. 1992a. Studies of insect/pitch canker relationships in California. Page 157 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver. Colorado. March 25–28. 1991. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-294.

Fox, J.W., D.L. Wood, R.P. Akers, and J.R. Parmeter Jr. 1992b. Survival and development of *Ips paraconfusus* Lanier (Coleoptera: Scolytidae) reared axenically and with tree-pathogenic fungi vectored by cohabiting *Dendroctonus* species. The Canadian Entomologist 124:1157–1167.

Francke, W., J. Bartels, S. Krohn, S. Schultz, E. Baader, J. Tengo, and D. Schneider. 1989. Terpenoids from bark beetles, solitary bees and danaine butterflies. Pure and Applied Chemistry 61:539–542.

Frank, J.H. and E.D. McCoy. 1992. The immigration of insects to Florida, with a tabulation of records published since 1970. Florida Entomologist 75:1–28.

Franqui, R.A., S. Medina-Gaud, and F. Gallardo-Covas. 1991. *Xylosandrus* *compactus* (Eichhoff). Coleoptera: Scolytidae, the black twig borer attacking coffee in Puerto Rico. The Journal of Agriculture of the University of Puerto Rico 75:183–184.

Fredericksen, T.S., R.L. Hedden, and S.A. Williams. 1993. Physiological response of loblolly pine *Pinus taeda* L. and susceptibility to bark beetle attack following simulated wind stress. Bulletin of the Ecological Society of America 74 (2 suppl.):241.

Fudala, A. 1984. An account of outbreaks of *Ips typographus* in 1945–83 in Olsztyn province. Las-Polski 4:18–19.

Fuentes, M., E. De Zayas, and M. Viamontes. 1992. *Ips grandicollis*, new pest in Cuba. Plant Protection Bulletin 40:46.

Führer, E. 1977b. Genetic incompatibility—a new method of preventing the build-up of pest populations in forests? Allgemeine Forstzeitschrift 1977(32):26,611–613.

———. 1984. Race differentiation in *Pityogenes chalcographus*. Part 4: Viability of interpopulational hybrids. Centralblatt für das Gesamte Forstwesen 101:24–33.

Führer, E., B. Hausmann, and L. Wiener. 1991. Borkenkäferbefall (Col., Scolytidae) und Terpenmuster der Fichtenrinde (*Picea abies* Karst.) an Fangbaumen. [Bark beetle (Col., Scolytidae) colonization and terpene patterns in the bark of Norway spruce (*Picea abies* Karst.) trap trees]. Journal of Applied Entomology 112:113–123.

———. 1993. Brutraumdifferenzierung zwischen *Ips typographus* L. und *Pityogenes chalcographus* L. (Col., Scolytidae) an Fichtenstammen in ihrer Beziehung zu Monoterpenmustern. [Differentation of breeding sites between *Ips typographus* L. and *Pityogenes chalcographus* L. (Col., Scolytidae) on spruce trunks and their relationship to monoterpene patterns]. Mitteilungen der Deutschen Gesellschaft für Allgemeine und Angewandte Entomologie 8:491–495.

Führer, E., L. Wiener, and B. Hausman. 1992. Dynamik von Terpen-Mustern und Borkenkäfer-Befall an Fangbaum-Fichten unterschiedlichen Kronen-Zustandes (Coleoptera-Scolytidae). [Dynamics of terpene patterns and bark beetle colonization in spruce trap trees showing different crown depletion (Coleoptera-Scolytidae)]. Entomologia Generalis 17:207–218.

Funke, W. 1991. Auswirkung von Cypermethrin auf Bodentiere. [Effects of cypermethrin on soil fauna]. Pages 166–180 *In* Alfred Wulf and R. Kehr (eds.). Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integreiten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Funke, W. and M. Peterschagen. 1991. Zur Orientierung und zur Flugaktivität von *Ips typographus* L. und *Trypodendron lineatum* Ol. (Scolytidae). [Orientation and flight activity of *Ips typographus* L. and *Trypodendron lineatum* Ol. (Scolytidae)]. Pages 94–100 *In* Alfred Wulf and R.Kehr (eds.). Borkenkäfer-Gehfahren nach Sturmschäden: Möglichkeiten und Grenzen einer integrierten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Furniss, M.M. 1995. Biology of *Dendroctonus punctatus* (Coleoptera: Scolytidae). Annals of the Entomological Society of America 88: 173–182.

Furniss, M.M., H. Solheim, and E. Christiansen. 1990. Transmission of blue-stain fungi by *Ips typographus* (Coleoptera: Scolytidae) in Norway spruce. Annals of the Entomological Society of America 83:712–716.

Furniss, M.M., J.B. Johnson, R.L. Westcott, and T.R. Torgersen. 1992. List of Oregon Scolytidae (Coleoptera) and notes on new records. Great Basin Naturalist 52:373–377.

Furuta, K., K. Iguchi, S. Lawson, and I. Takahashi. 1994. Effects of ipsenol on trap catches of the spruce beetle, *Ips typographus japonicus* Niijima. Journal of the Japanese Forestry Society 76:604–606.

G

Galoux, A. 1947e. Secondary organisms on Corsican pine following severe winter cold. Bulletin de la Société Centrale Forestiere de Belgique 54:357–359.

***Gampe, S.** 1991. Plantation trials with spruce in western Bhutan. Bhutan Department of Forestry (Tsenden Thimphu, Bhutan). 3:15–24.

***Gara, R.I., L.A. Cerda and M.A. Donoso.** 1980. Manual de entomología forestal. Fac. Ing. Forestal, U. Austral, Chile.

Gara, R.I., W.R. Littke, and D.F. Rhoades. 1993. Emmission of ethanol and monoterpenes by fungal infected lodgepole pine trees. Phytochemistry 34:987–990.

Gara, R.I., C.D. Oliver, and R.M. Kenady. 1982. Insect pests of true firs in the Pacific Northwest. Contribution of the Institute of Forest Resources, University of Washington, Seattle 45:157–160.

Garraway, E. 1993. *Phloeosinus serratus* (Coleoptera: Scolytidae) attacking *Cupressus* *lusitanica* in Jamaica: a new host record. Florida Entomologist 76:181–182.

Garraway, E. and B.E. Freeman. 1990. The population dynamics of *Ips grandicollis* (Eichoff) (Coleoptera: Scolytidae) in Jamaica. The Canadian Entomologist 122:217–227.

Garry, C.E., R.W. Baker, D.P. Schwert, and A.F. Schneider. 1990a. Environmental analysis of a Twocreekan-aged beetle (Coleoptera) assemblage from Kewaunee, Wisconsin. Pages 57–65 *In* A.F. Schneider and G.S. Fraser (eds.). Late Quaternary history of a Lake Michigan basin: Boulder, Colorado. Geological Society of America Special Paper 251.

Garry, C.E., D.P. Schwert, R.G. Baker, T.J. Kemmins, D.G. Horton, and A.E. Sullivan. 1990b. Plant and insect remains from the Wisconsinan interstadial/stadial transition at Wedron, north-central Illinois. Quaternary Research 33:387–399.

Garry, C.E., D.P. Schwert, R.W. Baker, and G.N. Meyer. 1994. Analysis of an insect fossil assemblage from an organic-rich silt located below till of the Grantsburg sublobe, Chisago county, Minnesota. Page 212 *In* American Quaternary Association. Program and Abstracts of the 13th biennial meeting, 19–22 June, 1994. The Limnological Research Center, University of Minnesota, Minneapolis, MN.

Gast, S.J. and M.W. Stock. 1994. Genetic diversity in overwintered and non-overwintered *Ips pini* (Say) (Coleoptera: Scolytidae) in Idaho. Pan-Pacific Entomologist 70:259–266.

Gast, S.J., M.W. Stock, and M.M. Furniss. 1993. Physiological factors affecting attraction of *Ips pini* (Coleoptera: Scolytidae) to host odor or natural male pheromone in Idaho. Annals of the Entomological Society of America 86:417–422.

Gehrken, U. 1992. Inoculative freezing and thermal hysteresis in the adult beetles *Ips acuminatus* and *Rhagium inquisitor*. Journal of Insect Physiology 38:519–524.

Geiszler, D.R. 1983. Interactions of fire, fungi and mountain pine beetles in a lodgepole pine stand in south-central Oregon. Forestry Abstracts 44:694.

Georgescu, C.C., I. Teodoru, and M. Badea. 1945. Mass die-back of oak. Revista Padurilor 57:65–79.

Gibbs, J.N. 1973. Continuing the DED fight—two reports on benomyl. Benlate still best. Gardeners Chronicle 173:4,24,26.

———. 1984. Oak wilt. Great Britain Forestry Commission, Forestry Report 126.

Gibbs, J.N. and A. Inman. 1991. The pine shoot beetle *Tomicus piniperda* as a vector of blue stain fungi to windblown pine. Forestry: The Journal of the Institute of Chartered Foresters 64:239–249.

Gibson, K.E. 1988c. Mountain pine beetle status and potential. Plains/Thompson Falls Ranger District, Lolo National Forest. United States Department of Agriculture, Forest Service, Northern Region (Missoula, MT). Cooperative Forestry and Pest Management Report 89-3.

———. 1990. Permanent mountain pine beetle population trend plots: an update, 1989. United States Department of Agriculture, Forest Service, Northern Region (Missoula, MT). Report 90-7.

———. 1992. Will silviculture remain the answer to bark beetle problems? Page 106 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference, Denver, Colorado, March 25–28, 1991. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

———. 1994. Bark beetle pheromone use in the USDA Forest Service's Northern Region. Pages 28–32 *In* Patrick J. Shea (tech. coord.). Proceedings of the Symposium on Management of Western Bark Beetles with Pheromones: Research and Development, Kailua-Kona, Hawaii, June 22–25, 1992. United States Department of Agriculture, Forest Service, Pacific Southwest Research Station (Albany, CA). General Technical Report PSW-GTR-150.

Gibson, K.E. and J.E. Dewey. 1992. A review of mountain pine beetle management in the Northern Region during the decade 1982–1991. United States Department of Agriculture, Forest Service, Northern Region (Missoula, MT). Report 92-8.

Gibson, K.E. and R.D. Oakes. 1991. Efficacy of Douglas-fir beetle tree baits in containing outbreak populations of Douglas-fir beetles in northern Idaho. United States Department of Agriculture, Forest Service, Northern Region (Missoula, MT). Timber, Cooperative Forestry and Pest Management. Report 91-04.

Gibson, K.E., R.F. Schmitz, G.D. Amman, and R.D. Oakes. 1991. Mountain pine beetle response to different verbenone dosages in pine stands of western Montana. United States Department of Agriculture, Forest Service, Intermountain Research Station (Ogden, UT). Research Paper INT-444.

Giganti, H.E. 1986. Damage caused by insects in wood-producing species in the forests of Moquehue. Turrialba 36:111–116.

Giganti, H.E. and G. Dapoto. 1990. Coleópteros de los bosques nativos del Departamento

Aluminé (Neuquén-Argentina). [Coleoptera of the native forests in the Department of Aluminé (Neuquén-Argentina). Bosque 11:37–44.

***Gijzen, M., E. Lewinsohn, T.J. Savage, and R.B. Croteau.** 1993. Conifer monoterpenes: Biochemistry and bark beetle chemical ecology. Pages 8–22 *in* R. Teranishi, R.G. Buttery and H. Sugisawa (eds.). Bioactive volatile compounds from plants. American Chemical Society Symposium Series 525.

Gillerfors, G. 1988. Skalbaggar införda till Sverige med importerad massaved. [Coleoptera from pulp-wood imported to south Sweden from France and Spain]. Entomologisk Tidskrift 109:42–45.

Gillespie, A.J.R. 1990. Validation of mountain pine beetle outbreak model for lodgepole pine in central Oregon. United States Department of Agriculture. Forest Service. Forest Pest Management. Methods Application Group (Ft. Collins, CO). Report 90-1.

Gimbarzevsky, P.A., F. Dawson, and G.A. Van Sickle. 1992. Assessment of aerial photographs and multi-spectral scanner imagery for measuring mountain pine beetle damage. Government of Canada. Canadian Forestry Service. Pacific Forestry Centre (Victoria, BC). Information Report BC-X-333.

Giordanengo, P., L.O. Brun, and B. Frerot. 1993. Evidence for allelochemical attraction of the coffee berry borer, *Hypothenemus hampei*, by coffee berries. Journal of Chemical Ecology 19:763–769.

Girs, G.I. and V.M. Yanovsky. 1991. Effects of larch defences on xylophagous insect guilds. Pages 378–384 *In* Y.N. Baranchikov, W.J. Mattson, F.P. Hain and T.L. Payne (eds.). Forest insect guilds: Patterns of interactions with host trees. United States Department of Agriculture. Forest Service. Northeastern Forest Research Station (Radnor, PA). General Technical Report NE-153.

Glos, P. 1989a. Strength of spruce structural timber with insect and fungus attack: bending strength. Holz als Roh- und Werkstoff 47: 329–335.

———. 1989b. Strength of spruce structural timber with insect and fungus attack: compressive and tensile strength. Holz als Roh- und Werkstoff 47:365–371.

Glowacka, B., A. Lech, and W. Wilczynski. 1991. Application of deltamethrin for spraying or dipping to protect Scots pine seedlings against *Hylobius abietis* L. and logs against *Tomicus piniperda* L. Annales des Sciences Forestieres 48:113–117.

Gnat, E.V. 1991. Characteristics of the distribution of pine trees according to diameter in foci of the bark beetle *Dendroctonus micans*. (In Russian). Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR. Seriya Biologicheskikh Nauk 5:43–46.

Gogniat, L. 1991. Les Scolytides du Canton du Jura I. Catalogue faunistique. Bulletin de la Société Neuchâteloise des Sciences Naturelles 114:19–30.

Gohda, M., S. Sakai, H. Nogami, K. Matuisi, and H. Yonebayashi. 1964. Studies on the chemical control of the wood boring beetles in pine trees. I. On the effectiveness of various formulations containing gamma-BHC and EDB against bark beetles on dead pine trees. (In Japanese). Japanese Journal of Applied Entomology and Zoology 8:263–271.

Goheen, D.J. and E.M. Hansen. 1993. Effects of pathogens and bark beetles on forests. Pages 175–196 *In* T.D. Schowalter and G.M. Filip (eds.). Beetle-pathogen interactions in conifer forests. Academic Press: London.

Goix, J. 1977. The wilting of pines in the 'Centre' region. Phytoma 29:18–21.

Goldhammer, D.S., F.M. Stephen, and T.D. Paine. 1990. The effect of the fungi *Ceratocystis minor* (Hedgecock) Hunt, *Ceratocystis minor* (Hedgecock) Hunt var. *barrasii* Taylor, and SJB 122 on reproduction of the southern pine beetle, *Dendroctonus frontalis* Zimmermann (Coleoptera: Scolytidae). The Canadian Entomologist 122:407–418.

***González, R.H.** 1989. Insectos y ácaros de importancia agricola y cuarentenaria en Chile. Impresora y Editora Ograma S.A., Santiago, Chile.

González, R., A. Alvarez, and M. Campos. 1994. An electroantennogram apparatus for testing the activity of semiochemicals on the olive beetle, *Phloeotribus scarabaeoides* (Coleoptera: Scolytidae): first recordings of the response to ethylene. Physiological Entomology 19:301–306.

González, R. and M. Campos. 1990a. Evaluation of natural enemies of the *Phloeotribus scarabaeoides* (Bern.) (Col: Scolytidae) in Granada olive trees. Acta Horticulturae 286: 355–358.

———. 1990b. Rearing of *Cheiropachus quadrum* (Hym.: Pteromalidae) from the olive beetle, *Phloeotribus scarabaeoides* (Col.: Scolytidae). Potential biological control agent. Redia 73: 495–505.

———. 1990c. Cría en laboratoria de *Phloeotribus scarabaeoides* (Bernard, 1788). [Laboratory rearing of *Phloeotribus scarabaeoides* (Bernard, 1788)]. Boletin de Sanidad Vegetal, Plagas 16:355–361.

———. 1991a. Relationship between the phenology of *Phloeotribus scarabaeoides* (Col., Scolytidae) and its parasitoids (Hym., Pteromalidae). (In Spanish, with English summary). Boletin de la Asociacion Espanola de Entomologia 15:131–143.

———. 1991b. Effect of parent density on fecundity of two parasitoids (Hym: Pteromalidae) of the olive beetle. *Phloeotribus scarabaeoides* (Col: Scolytidae). Entomophaga 36:473–480.

———. 1993. Spatial distribution of attacks by *Phloeotribus scarabaeoides* (Coleoptera: Scolytidae) in two olive groves in the south of Spain. Mitteilungen der Schweizerischen Entomologischen Gesellschaft 66:323–335.

———. 1994. A preliminary study of the effect of attacks by *Phloeotribus scarabaeoides* (Bern.) (Coleoptera: Scolytidae) on the productivity of the olive tree (*Oleo europea* L.). Mitteilungen der Schweizerischen Entomologischen Gesellschaft 67:67–75.

Gotze, H., G. Schultze-Dewitz, G. Lehmann, and F. Muller. 1985. Secondary damage to wood of air pollution-damaged Norway spruce. Beitrage für die Forstwirtschaften 19:162–166.

Graf, E. and P. Manser. 1989. On the biology of insect pests of timber in the forests of St. Gallen. Schweizerische Zeitschrift für Forstwesen 140:1043–1054.

Graham, R.L., C.T. Hunsaker, R.V. O'Neill, and B.L. Jackson. 1991. Ecological risk assessment at the regional scale. Ecological Applications 1:196–206.

Grant, G.G. 1994. Practical considerations in the use of pheromones and semiochemicals for management of insect pests in seed orchards. Pages 71–82 *In* Jean J. Turgeon and P. de Groot (eds.), Biology, damage and management of seed orchard pests. Natural Resources Canada, Canadian Forest Service, Information Report FPM-X-89.

Gray, D.R., E. Holsten, and M. Pascuzzo. 1990. Effects of semiochemical baiting on the attractiveness of felled and unfelled lethal trap trees for spruce beetle, *Dendroctonus rufipennis* (Kirby) (Coleoptera: Scolytidae), management in areas of high and low beetle populations. The Canadian Entomologist 122:373–379.

Greene, L.E. 1992. Qualitative genetics of mountain pine beetle in central Oregon. Page 3 *In* Jane L. Hayes and J.L. Robertson (eds.), Proceedings of a workshop on bark beetle genetics: current status of research. May 17–18, 1992, Berkeley, California. United States Department of Agriculture, Forest Service, Pacific Southwest Research Station (Albany, CA). General Technical Report PSW-GTR-138.

Grégoire, J-C., M. Baisier, A. Drumont, D.L. Dahlsten, H. Meyer, and W. Francke. 1991. Volatile compounds in the larval frass of *Dendroctonus valens* and *Dendroctonus micans* (Coleoptera: Scolytidae) in relation to oviposition by the predator, *Rhizophagus grandis* (Coleoptera: Rhizophagidae). Journal of Chemical Ecology 17:2003–2019.

Grégoire, J-C., D. Couillien, A. Drumont, H. Meyer, and W. Francke. 1992. Semiochemicals and the management of *Rhizophagus grandis* Gyll. (Col., Rhizophagidae) for the biocontrol of *Dendroctonus micans* Kug. (Col., Scolytidae). Journal of Applied Entomology 114:110–112.

Gries, G. 1992. Ratios of geometrical and optical isomers of pheromones: irrelevant or important in scolytids? Journal of Applied Entomology 114:240–243.

Gries, G., W.W. Bowers, R. Gries, M. Noble, and J.H. Borden. 1990a. Pheromone production by the pine engraver *Ips pini* following flight and starvation. Journal of Insect Physiology 36:819–824.

Gries, G., A. Leufven, J.P. Lafontaine, H.D. Pierce Jr., J.H. Borden, D. Vanderwel, and A.C. Oehlschlager. 1990b. New metabolites of alpha-pinene produced by the mountain pine beetle, *Dendroctonus ponderosae* (Coleoptera: Scolytidae). Insect Biochemistry 20: 365–371

Gries, G., M.J. Smirle, A. Leufven, D.R. Miller, J.H. Borden, and H.S. Whitney. 1990c. Conversion of phenylalanine to toluene and 2-phenylethanol by the pine engraver *Ips pini* (Say) (Coleoptera, Scolytidae). Experimentia (Basel) 46:329–331.

Gries, G., J.H. Borden, R. Gries, J.P. Lafontaine, E.A. Dixon, H. Weiser and A.T. Whitehead. 1992a. 4-Methylene-6,6-dimethylbicyclo[3.1.1]hept-2-ene (Verbene): new aggregation pheromone of the scolytid beetle *Dendroctonus rufipennis*. Naturwissenschaften 79:367–368.

Gries, G., R. Gries, J.H. Borden, H.D. Pierce Jr., B.D. Johnston, and A.C. Oehlschlager. 1992b. 3,7,7-Trimethyl-1,3,5-cycloheptatriene in volatiles of female mountain pine beetles, *Dendroctonus ponderosae*. Naturwissenschaften 79:27–28.

Grissell, E.E. 1983. *Boharticus*, N. Gen., with a review of *Rhopalicus* Foerster and *Dinotiscus* Ghesquiere (Hymenoptera: Pteromalidae). Pan-Pacific Entomologist 59:78–102.

Grosman, D.M., S.M. Salom, and T.L. Payne. 1992. Laboratory study of conspecific avoidance by host-colonizing *Dendroctonus frontalis* Zimm. (Coleoptera: Scolytidae). Journal of Insect Behavior 5:263–271.

Grosser, D. 1984. Conditions necessary for the existance of. and the recognition of little known wood-destroying insects and "occasional wood-destroyers". Praktische Schadlingsbekampfer 36:101–112.

Guerra, C., M.O. Lopez, R.M. Alonso, E. Valdes, E. de Zayas and P. Perez. 1992. Nuevas especies del géenero *Ceratocystis* sobre los pinares Cubanos. [New species of genus *Ceratocystis* in pine stands in Cuba]. Revista Baracoa 22:91–94.

Guerra, C., M.O. Lopez Mesa, E. Valdes, P. Perez Bravo, and A. Fernandez. 1989. Presencia de *Ceratocystiopsis minima* y *Ceratocystis seticollis* en pinares de la region occidental de Cuba. [Presence of *Ceratocystiopsis minima* and *Ceratocystis seticollis* in pine stands in the western region of Cuba]. Revista Forestal Baracoa 19:113–117.

Gurando, E.V. 1990. Ecofaunistic characterization of nematodes of the pine-shoot beetle. Pages 53–58 *In* M.D. Sonin. Helminths of Insects. Brill: Leiden.

Guse-i-nov, E.S. 1984. Vascular dieback of oak in Azerbaijan. (In Russian). Mikologiya i Fitopatologiya 18:144–149.

H

Haack, R.A. 1995. Another exotic bark beetle "detected" in North America-editor's note. Newsletter of the Michigan Entomological Society 40(1):5.

Haack, R.A., R.F. Billings, and A.M. Richter. 1990. Life history parameters of bark beetles (Coleoptera: Scolytidae) attacking West Indian pine in the Dominican Republic. Florida Entomologist 73:591–603.

Haack, R.A. and D. Kucera. 1993. New introduction—Common Pine Shoot Beetle. *Tomicus piniperda* (L.). United States Department of Agriculture. Forest Service. Northeastern Area. Pest Alert NA-TP-05-93.

Haack, R.A., R.K. Lawrence, and G. Heaton. 1993. The Pine Shoot Beetle: A new exotic pest. Newsletter of the Michigan Entomological Society 38:1–2.

Haack, R.A., D.A. Herms, B.D. Ayers, M.P. Ayers, and M.L.D. Snider. 1992. Genetic basis of semiochemically mediated bark beetle-predator coevolution: implications for developing mass-trapping technologies. Pages 20–21 *In* Jane L. Hayes and J.L. Robertson (eds.). Proceedings of a workshop on bark beetle genetics: current status of research. May 17–18. 1992. Berkeley. California. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-138.

Haanstad, J.O. and D.M. Norris. 1992. Altered elm resistance to smaller European elm bark beetle (Coleoptera: Scolytidae) and forest tent caterpillar (Lepidoptera: Lasiocampidae). Journal of Economic Entomology 85: 172–181.

Habermehl, A. and H.W. Ridder. 1993. Anwendungen der mobilen Computer-Tomographie zur zerstorungsfreien Untersuchungen des Forstbotanische Untersuchungen des Holzkorpers vonstehenden Baumen. Forstbotanische Untersuchungen. [Applications of mobile computer tomography for nondestructive investigation of the wood of standing trees. Forest-botany investigations]. Holz als Roh- und Werkstoff 51:1–6.

Hadley, K.S. 1994. The role of disturbance, topography and forest structure in the development of a montane forest landscape. Bulletin of the Torrey Botanical Club 121:47–61.

Hadley, K.S. and T.T. Veblen. 1993. Stand response to western spruce budworm and Douglas-fir bark beetle outbreaks. Colorado Front Range. Canadian Journal of Forest Research 23:479–491.

Hager, B.J. and S.A. Teale. 1994. Repeatability of female response to ipsdienol enantiomeric mixtures by pine engraver, *Ips pini* (Coleoptera: Scolytidae). Journal of Chemical Ecology 20:2611–2622.

Hagle, S.K. and R. Schmitz. 1993. Managing root disease and bark beetles. Pages 209–228 *In* T.D. Schowalter and G.M. Filip (eds.). Beetle-pathogen interactions in conifer forests. Academic Press: London.

Hallberg, E. 1993. Fine structure of the hindgut of *Ips typographus* (Coleoptera: Scolytidae). Entomologia Generalis 18:25–36.

Halstead, A.J. 1994. Some local Coleoptera taken in 1993. Pages 169–170 *In* 1993 Annual Exhibition. Imperial College. London SW7-30 October 1993. British Journal of Entomology and Natural History 7:145–180.

Halstead, J.A. 1990. New hosts for *Cephalonomia utahensis* Brues (Hymenoptera: Bethylidae). Pan-Pacific Entomologist 66: 170–171.

Hamilton, Jr., D.A. and D.L.R. Wendt. 1975. SCREEN: a computer program to identify predictors of dichotomous dependent variables. United States Department of Agriculture. Forest Service. Intermountain Forest and Range

Experiment Station (Ogden, UT). General Technical Report INT-22.

Hanke, K.-L. 1991. Ökonomische Aspekte der Borkenkäferbekämpfung. (Economical aspects of bark beetle control). Pages 37–42 *In* Alfred Wulf and R. Kehr. Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integrierten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Hansen, L.O. and L. Somme. 1994. Cold hardiness of the elm bark beetle *Scolytus laevis* Chapuis, 1873 (Col., Scolytidae) and its potential as Dutch elm disease vector in the northernmost elm forests of Europe. Journal of Applied Entomology 117:444–450.

Hansen, M., V. Mahler, E. Palm, and O. Vagtholm-Jensen. 1990. Ottende tillæg til "Fortegnelse over Danmarks biller" (Coleoptera). [Eighth supplement to the list of Danish Coleoptera]. Entomologiske Meddelelser 58: 11–29.

Hansen, M., P. Jorum, V. Mahler, and O. Vagtholm-Jensen. 1991a. Niende tillæg til "Fortegnelse over Danmarks biller" (Coleoptera). [Ninth supplement to the list of Danish Coleoptera]. Entomologiske Meddeleser 59: 5–21.

Hansen, M., S. Kristensen, V. Mahler, and J. Pedersen. 1991b. Tiende tillæg til "Fortegnelse over Danmarks biller" (Coleoptera). [Tenth supplement to the list of Danish Coleoptera]. Entomologiske Meddelelser 59: 99–126.

———. 1992. 11. tillæg til "Fortegnelse over Danmarks biller" (Coleoptera). [11th supplement to the list of Danish Coleoptera]. Entomologiske Meddelelser 60:69–84.

Hansen, M., H. Liljehult, V. Mahler, and E. Palm. 1993. 12. tillæg til "Fortegnelse over Danmarks biller" (Coleoptera). [12th supplement to the list of Danish Coleoptera]. Entomologiske Meddelelser 61:85–113.

Hansen, M., V. Mahler, G. Pritzl, and J.B. Runge. 1994. 13. tillæg til "Fortegnelse over Danmarks biller" (Coleoptera). [13th supplement to the list of Danish Coleoptera]. Entomologiske Meddelelser 62:65–89.

Hard, J.S. 1992. Success of spruce beetle attacks in pruned and unpruned boles of Lutz spruce in south-central Alaska. Forest Ecology and Management 47:51–70.

Hard, J.S. and E.H. Holsten. 1991. Spruce beetle attacks and surviving beetle brood in limbed and bucked spruce in south-central Alaska. Northwest Science 65:205–211.

Harrington, T.C. 1993. Biology and taxonomy of fungi associated with bark beetles. Pages 37–58 *In* T.D. Schowalter and G.M. Filip (eds.). Beetle-pathogen interactions in conifer forests. Academic Press: London.

Harrington, T.C. and P.J. Zambino. 1990. *Ceratocystiopsis ranaculosus*, not *Ceratocystis minor* var. *barrassi*, is the mycangial fungus of the southern pine beetle. Mycotaxon 38:103–115.

Harris, J.A. and G. Minko. 1980. An ambrosia beetle in radiata pine. Forestry Commission (Melbourne, Australia). Forestry Technical Papers 28:26–31.

Hasegawa, T., A. Kamada, and K. Mori. 1992. Synthesis of the enantiomers of 7-methyl-1,6-dioxaspiro[4.5]decane, pheromone of the common wasp and the pine beetle. Bioscience, Biotechnology, and Biochemistry 56:838–839.

Haverty, M.I., M. Page, and G.J. Blomquist. 1989. Value of cuticular hydrocarbons for identifying morphologically similar species of pine cone beetles. Pages 50–62 *in* Proceedings of the 3rd Cone and Seed Insects Working Party Conference, Victoria, British Columbia, 26–30 June 1988. Forestry Canada, Pacific Forestry Centre, Victoria, B.C.

Hayes, J.L. and J.I. Robertson. 1992. An (ecological biased) view of the current status of bark beetle genetics and future research needs. Pages 1–2 *In* Jane L. Hayes and J.L. Robertson (eds.). Proceedings of a workshop on bark beetle genetics: current status of research, May 17–18, 1992, Berkeley, California. United States Department of Agriculture, Forest Service, Pacific Southwest Research Station (Albany, CA). General Technical Report PSW-GTR-138.

Hayes, J.L. and B.L. Strom. 1994. 4-allylanisole as an inhibitor of bark beetle (Coleoptera: Scolytidae) aggregation. Journal of Economic Entomology 87:1586–1594.

Hayes, J.L., B.L. Strom, L.M. Roton, and L.L. Ingram, Jr. 1994a. Repellent properties of the host compound 4-allylanisole to the southern pine beetle. Journal of Chemical Ecology 20:1595–1615.

***Hayes, J.L., L.L. Ingram, Jr., B.L. Strom, L.M. Roton, M.W. Boyette, and M.T. Walsh.** 1994b. Identification of a host compound and its practical applications: 4-allylanisole as a bark beetle repellent. Pages 69–79 *In* J. Vozzo (ed.). Proceedings of the 4th Southern Station Chemical Sciences Meeting, Starkville, MS, 1–2 Feburary 1994.

Heath, R. and R.I. Alfaro. 1990. Growth response in a Douglas-fir/lodgepole pine stand after thinning of lodgepole pine by the mountain pine beetle: A case study. Journal of the

Entomological Society of British Columbia 87:16–21.

Heliövaara, K. and R. Väisänen. 1991. Bark beetles and associated species with high heavy metal tolerance. Journal of Applied Entomology 111:397–405.

Heliövaara, K., R. Väisänen, and A. Immonen. 1991. Quantitative biogeography of bark beetles (Coleoptera. Scolytidae) in northern Europe. Acta Forestalia Fennica No. 219.

***Heritage, S. and P. Tabbush.** 1989. The effect of insecticides on the quality of forest planting stock. Page 303 *In* Workshop on producing uniform conifer planting stock. York. England. UK. September 19–23. 1988. Forestry (Eynsham) 62(supplement).

Herms, D.A., M.P. Ayres, R.A. Haack, and B.D. Ayres. 1993. *Thanasimus dubius* (Cleridae) and *Ips pini* (Scolytidae): Semiochemical-mediated predator-prey coevolution? Bulletin of the Ecological Society of America 74 (2 suppl.):274.

Herms, D.A., R.A. Haack, and B.D. Ayres. 1991a. Variation in semiochemical-mediated prey-predator interaction: *Ips pini* (Scolytidae) and *Thanasimus dubius* (Cleridae). Journal of Chemical Ecology 17:515–524.

———. 1991b. Variation in semiochemical-mediated prey-predator interaction: *Ips pini* (Scolytidae) and *Thanasimus dubius* (Cleridae). Journal of Chemical Ecology 17:1705–1714.

Herrera I.L. and H. Grillo R. 1989. *Spathodea campanulata* Beauv., nueva planta hospedante de *Ceratocystis fimbriata* Hell & Halst y *Xyleborus* spp. (*Spathodea campanulata* Beauv., new host plant of *Ceratocystis fimbriata* Hell & Halst and *Xyleborus* spp.). Centro Agricola 16:91–93.

Hessburg, P.F., R.G. Mitchell, and G.M. Filip. 1994. Historical and current roles of insects and pathogens in eastern Oregon and Washington forested landscapes. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-327.

Hijii, N., H. Kajimura, T. Urano, H. Kinuura, and H. Itami. 1991. The mass mortality of oak trees induced by *Platypus quercivorus* (Murayama) and *Platypus calamus* Blandford (Coleoptera: Platypodidae). The density and spatial distribution of attack by the beetles. Journal of the Japanese Forestry Society 73:471–476.

***Hilje, L., L. Quiros, and F. Scorza Reggio.** 1991. El status actual de las plagas forestales en Costa Rica. [Present status of forest pests in Costa Rica]. Manejo Integrado de Plagas 20–21:18–22.

Hilt, M. and U. Ammer. 1994. Totholzbesiedelnde Käfer im Wirtschaftswald—Fichte und Eiche im Vergleich. [Beetles inhabiting dead wood in managed forests—comparison of spruce and oak]. Forstwissenschaftliches Centralblatt 113:245–255.

Hinds, T.E. and R.W. Davidson. 1975. Two new species of *Ceratocystis*. Mycologia 67:715–721.

Hinz, P.N. and G.B. Pitman. 1983. Analyzing data on insect response to pheromones: from a field study of the western pine beetle. Iowa State Journal of Research 58:195–206.

Hirschheydt, J.V. 1992. Der Amerikanische Nutzholzborkenkafer *Gnathotrichus materiarius* (Fitch) hat die Schweiz erreicht. [The American ambrosia beetle *Gnathotrichus materiarius* (Fitch) has reached Switzerland]. Mitteilungen der Schweizerischen Entomologischen Gesellschaft 65:33–37.

Hobson, K.R. and D.E. Bright. 1994. A key to *Xyleborus* of California, with faunal comments (Coleoptera: Scolytidae). Pan-Pacific Entomologist 70:267–268.

Hobson, K.R. and O. Edwards. 1992. Novel bark beetle research possible with new genetic techniques. Page 23 *In* Jane L. Hayes and J.L. Robertson (eds.). Proceedings of a workshop on bark beetle genetics: current status of research. May 17–18. 1992. Berkeley. California. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-138.

Hobson, K.R., J.R. Parmeter Jr., and D.L. Wood. 1992. Bluestain fungi and the xylem occlusion enigma. Page 156 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver. Colorado. March 25–28. 1991. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-294.

———. 1994. The role of fungi vectored by *Dendroctonus brevicomis* LeConte (Coleoptera: Scolytidae) in occlusion of ponderosa pine xylem. The Canadian Entomologist 126: 277–282.

Hobson, K.R. and D.L. Wood. 1993. Stereospecific attraction of the red turpentine beetle to volatiles of host pines. Bulletin of the Ecological Society of America 74 (2 suppl.):278–279.

Hobson, K.R., D.L. Wood, L.G. Cool, P.R. White, T. Ohtsuka, T. Kubo, and I. Zavarin. 1993. Chiral specificity in responses by the bark beetle *Dendroctonus valens* to host kairomones. Journal of Chemical Ecology 19:1837–1846.

Hoebeke, E.R. 1991. An Asian ambrosia beetle, *Ambrosiodmus lewisi*, new to North America (Coleoptera: Scolytidae). Proceedings of the Entomological Society of Washington 93: 420–424.

———. 1994. New records of immigrant bark beetles (Coleoptera: Scolytidae) in New York: attraction of conifer-feeding species to ethanol-baited trap logs. Entomological News 105: 267–276.

Hoganson, J.W. and A.C. Ashworth. 1992. Fossil beetle evidence for climatic change 18,000–10,000 years B.P. in south-central Chile. Quaternary Research 37:101–116.

Holder, W. 1992a. Imported beetle threatens pine trees. Long Island Horticulture News (Cornell Cooperative Extension, Riverhead, NY). Dec. 1992:1–2.

———. 1992b. Imported beetle threatens pine trees. Agfocus (Cornell Cooperative Extension, Middletown, NY). Dec. 1992:11,15.

Holland, D.G. 1994. Western bark beetle pheromones research, development, and application program. Pages 3–4 *In* Patrick J. Shea (tech. coord.). Proceedings of the Symposium on Management of Western Bark Beetles with Pheromones: Research and Development. Kailua-Kona, Hawaii, June 22–25, 1992. United States Department of Agriculture, Forest Service, Pacific Southwest Research Station (Albany, CA). General Technical Report PSW-GTR-150.

Holling, C.S. 1992. The role of forest insects in structuring the boreal landscape. Pages 170–195 *In* H.H. Shugart, R. Leemans and G.B. Bonan (eds.). A systems analysis of the global boreal forest. Cambridge University Press: Cambridge, England, UK.

Holmes, T.P. 1991. Price and welfare effects of catastrophic forest damage from southern pine beetle epidemics. Forest Science 37:500–516.

———. 1992. Timber supply impacts of southern pine beetle outbreaks. Page 55 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver, Colorado, March 25–28, 1991. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

———. 1993. Bootstrap confidence intervals for stand-level economic losses from southern pine beetle infestations. Pages 633–637 *In* Proceedings of the Seventh Biennial Southern Silvicultural Research Conference. Mobile, Alabama, November 17–19, 1992. United States Department of Agriculture, Forest Service, Southern Forest Experiment Station (New Orleans, LA). General Technical Report SO-93.

Holsten, E.H. 1990. Spruce beetle activity in Alaska: 1920–1989. United States Department of Agriculture, Forest Service, Alaska Region (Anchorage, AK). State and Private Forestry, Technical Report R10-90-18.

———. 1994. The role of spruce beetle pheromones as management strategies in Alaska. Pages 11–14 *In* Patrick J. Shea (tech. coord.). Proceedings of the Symposium on Management of Western Bark Beetles with Pheromones: Research and Development. Kailua-Kona, Hawaii, June 22–25, 1992. United States Department of Agriculture, Forest Service, Pacific Southwest Research Station (Albany, CA). General Technical Report PSW-GTR-150.

Holsten, E.H. and R.A. Werner. 1990. Comparison of white, sitka and Lutz spruce as hosts of the spruce beetle in Alaska. Canadian Journal of Forest Research 20:292–297.

———. 1993. Effectiveness of polyethylene sheeting in controlling spruce beetles (Coleoptera: Scolytidae) in infested stacks of spruce firewood in Alaska. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). Research Paper PNW-RP-466.

Holzschuh, C. 1993. Erster Nachweis des Schwarzen Nutzholzborkenkäfers (*Xylosandrus germanus*) in Osterreich. [First report of the black timber beetle (*Xylosandrus germanus*) in Austria]. Forstschutz Aktuell 1993(12–13):10.

———. 1994. Zur Unterscheidung von *Xyleborinus saxesenii* (Ratzeburg) und *X. alni* (Niisima) (Coleoptera, Scolytidae). Entomologica Basiliensia 17:311–318.

Hong, L.T., S. Mohammed-Ali, A.G. Tan, and K. Daljeet Singh. 1982. Preservation and protection of rubberwood against biodeteriorating organisms for more efficient utilization. The Malaysian Forester 45:299–315.

Honnold, D.L. and D.L. Wood. 1990. Pest management in wilderness and roadless areas. Northwest Environmental Journal 6:177–193.

Hope, A.S. and D.A. Stow. 1993. An analysis of tree mortality in southern California using high spatial resolution remotely sensed spectral radiances: a climatic change scenario. Landscape and Urban Planning 24:87–94.

Hopkin, A.A. 1994. Pest damage to seed orchard trees. Pages 31–49 *In* Jean J. Turgeon and P. de Groot (eds.). Biology, damage and management of seed orchard pests. Natural Resources

Canada. Canadian Forest Service. Information Report FPM-X-89.

Horntvedt, R., E. Christiansen, H. Solheim, and S. Wang. 1983. Artificial inoculation with *Ips typographus*-associated blue-stain fungi can kill healthy Norway spruce trees. Meddelelser fra Norsk Institutt for Skogforskning 38(4). 20 pp. (Listed in Wood & Bright 1987 under 1st author only).

Howard, A.F. 1991. Timber quality classes from cruise data for lodgepole pine sawn at a board mill in British Columbia. Canadian Journal of Forest Research 21:498–503.

Hoy, J.B. and P.J. Shea. 1992. Area-wide effect on oribatid mites (Acari) following application of lindane for protection of lodgepole pine from bark beetle attack. Environmental Entomology 21:745–750.

Hubertz, H., J.R. Larsen, and B. Bejer. 1991. Monitoring spruce bark beetle *Ips typographus* L. populations under non-epidemic conditions. Scandinavian Journal of Forest Research 6:217–226.

Humphries, N. and L. Safranyik. 1993. Spruce beetle. Natural Resources Canada. Canadian Forestry Service. Pacific and Yukon Region (Victoria, B.C.). Forest Pest Leaflet 13.

Hunt, D.W.A. and J.H. Borden. 1990. Conversion of verbenols to verbenone by yeasts isolated from *Dendroctonus ponderosae* (Coleoptera: Scolytidae). Journal of Chemical Ecology 16:1385–1397.

Huntington, T.G. 1994. A comparison of environmental factors in southern pine beetle infested and uninfested loblolly pine forests in the Georgia Coastal Plain. Bulletin of the Ecological Society of America 75:102.

Hussein, A.E. 1990. Date varieties and palm height in relation to infestation with date stone beetle, *Coccotrypes dactyliperda* F. (Coleoptera: Scolytidae). Annals of Agricultural Science, Moshtohor 28:2613–2622.

Hutacharern, C., S. Choldumrongkul, S. Eungwijarnpanya, A. Choldumrongkul, and P. Pholwicha. 1988. Check list of forest insects in Thailand. Royal Forestry Department. Bangkok, Thailand.

Huuri, O. 1972. The effect of some chlorinated hydrocarbons on the initial development of planted pine seedlings. (In Finnish). Folia Forestalia. Institutum Forestale Fenniae 161.

Hyman, P.S. (revised and updated by M.S. Parsons). 1992. A review of the scarce and threatened Coleoptera of Great Britain. Part 1. UK Nature Conservation 3. UK Joint Nature Conservation Committee, Peterborough.

I

Iglesias, C., A. Notario, and J.R. Baragaño. 1989. Estudio de la secuencia temporal de coleópteros lignícolas en la colonización de tocones de pino. [Temporal sequence of lignicolous Coleoptera colonizing pine stumps]. Ecologia (Madrid) 3:313–321.

Illman, B.L. 1993. Hypersensitive reaction zone of White, Sitka and Lutz spruce induced by bark beetle-associated *Leptographium abietinum* (Peck). Phytopathology 83:1364.

Illman, B.L. and R.A. Werner. 1994. Sitka spruce response to *Leptographium abietinum*. Phytopathology 84:1143.

Infante, F., J.H. Luis, J.F. Barrera, J. Gómez, and A. Castillo. 1992. Thermal constants for preimaginal development of the parasitoid *Cephalonomia stephanoderis* Betrem (Hymenoptera: Bethylidae). The Canadian Entomologist 124:935–941.

Infante, F., S.T. Murphy, J.F. Barrera, J. Gómez, W. de la Rosa, and A. Damon. 1994a. Cría de *Phymastichus coffea* parasitoide de la broca del café, y algunas notas sobre su historia de vida. Southwestern Entomologist 19:313–315.

Infante, F., J. Valdez, D.I. Penagos, and J.F. Barrera. 1994b. Description of the life stages of *Cephalonomia stephanoderis* (Hymenoptera: Bethylidae), a parasitoid of *Hypothenemus hampei* (Coleoptera: Scolytidae). Vedalia 1:13–18.

Ishii, T. 1939. New Chalcidoid and Proctotrupoid wasps reared from forest insects by Dr. H. Kono. Kontyu 13:187–191.

Islas Salas, F. 1980. Observations on the biology and control of the pine bark beetles *Dendroctonus adjunctus*, *D. mexicanus* and *D. frontalis* in some regions of Mexico. (In Spanish). Instituto Nacional de Investigaciones Forestales, México. Boletin Tecnico 66.

Ismail, I.I., N.A. Abu-Zeid, and F.F. Abdallah. 1988. Ecological and behavioural studies on olive tree borer and their parasites. Agriculture Research Review 66:145–152.

Israelson, G. 1990. A key to the Macaronesian Hypoborini, with description of two new species (Coleoptera, Scolytidae). Bocagiana. Museu Municipal do Funchal (Madeira) 137.

Ivanchenke, Y.N. 1957. The causes of oak wilt in the Lipetsk range of the Savala forest. (In Russian). Trudy Vsesojuznogo Instituta Zascity Rastenij. Leningrad 8:221–225.

Ivarsson, P., F. Schlyter, and G. Birgersson. 1993. Demonstration of de novo pheromone biosynthesis in *Ips duplicatus* (Coleoptera: Scolytidae): inhibition of ipsdienol and E-myrcenol production by compactin. 1993. Insect Biochemistry and Molecular Biology 23:655–662.

J

Jacobi, W.R. 1992. Potential insect vectors of the black stain root disease pathogen on southern Vancouver Island. Journal of the Entomological Society of British Columbia 89:54–56.

———. 1993. Insects emerging from lodgepole pine infected by Commandra blister rust. United States Department of Agriculture. Forest Service. Rocky Mountain Forest and Range Experiment Station (Ft. Collins, CO). Research Note RM-519.

***Jactel, H.** 1991a. Caracteristiques du vol et capacites migratoires de *Ips sexdentatus* Boern. (Coleoptera: Scolytidae) en foret de pin sylvestre (*Pinus sylvestris* L.). [The characteristics of flight and the migratory capacity of *Ips sexdentatus* Boern. in a Scots pine (*Pinus sylvestris* L.) forest]. Unpublished thesis. University of Orleans, France.

———. 1991b. Dispersal and flight behaviour of *Ips sexdentatus* (Coleoptera: Scolytidae) in pine forest. Annales des Sciences Forestières 48:417–428.

———. 1993. Individual variability of the flight potential of *Ips sexdentatus* Boern. (Coleoptera: Scolytidae) in relation to day of emergence, sex, size, and lipid content. The Canadian Entomologist 125:919–930.

Jactel, H. and J. Gaillard. 1991. A preliminary study of the dispersal potential of *Ips sexdentatus* (Boern) (Col., Scolytidae) with an automatically recording flight mill. Journal of Applied Entomology 112:138–145.

***Jahn, E. and E. Donaubauer.** 1959. A dieback of larch and spruce in Austria. (In German). Anzeiger für Schädlingskunde 32:81–87.

James, T.J. 1994. A selection of Coleoptera from Hertfordshire, including several species which appear unrecorded from the county: these are prefixed with an asterik (*). Pages 171–172 *In* 1993 Annual Exhibition, Imperial College, London SW7, 30 October 1993. British Journal of Entomology and Natural History 7:145–180.

Jansen, E., R. Engesser, B. Forster, F. Meier, and O. Odermatt. 1992. Forstschutz 1991. Wild und Borkenkäfer verursachen am meisten Probleme. [Forest protection review 1991. Game and bark-beetles cause the most problems]. Wald und Holz 1992(6):15–17.

Jassim, H.K., H.A. Foster, and C.P. Fairhurst. 1990a. Biological control of Dutch elm disease: *Bacillus thuringiensis* as a potential control agent for *Scolytus scolytus* and *S. multistriatus*. Journal of Applied Bacteriology 69:563–568.

———. 1990b. Biological control of Dutch elm disease: Larvicidal activity of *Trichoderma harzianum* *T. polysporum* and *Scytalidium lignicola* in *Scolytus scolytus* and *S. multistriatus* reared in artificial culture. Annals of Applied Biology 117:187–196.

Jastrzembski, J.P. and J.P. Barrett. 1990. Monitoring the health of white pine in New Hampshire, 1959–1988. Pages 349–355 *In* Symposium on state-of-the-art methodology of forest inventory. Syracuse, New York, July 30 – August 5, 1989. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-263.

Jenkins, P. 1994. Dutch elm disease-contingency plan. Plant Protection Quarterly 9:59–60.

Jessop, L. and P.M. Hammond. 1993. Quantitive sampling of Coleoptera in north-east woodlands using flight interception traps. Transactions of the Natural History Society of Northumbria 56:41–60.

Jin, X.U., J. Morton, and L. Butler. 1992. Interactions between *Fusarium avenaceum* and *Hylastinus obscurus* (Coleoptera: Scolytidae) and their influence on root decline in red clover. Journal of Economic Entomology 85: 1340–1346.

Joermann, G. 1991. Auswirkungen der chemischen Borkenkäferbekämpfung auf Säugetiere und Vögel. [Effects of chemical bark beetle control on mammals and birds]. Pages 191–197 *In* Alfred Wulf and R. Kehr (eds.). Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integreiten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Johansson, L., J. Andersen, and A.C. Nilssen. 1994. Distribution of bark insect in "island" plantations of spruce (*Picea abies* (L.) Karst.) in subarctic Norway. Polar Biology 14: 107–116.

Johansson, L., A.C. Nilssen, and J. Andersen. 1994. Flexible generation time in *Dryocoetes autographus* (Ratz.) (Col., Scolytidae): A key to its success as colonist in subarctic regions? Journal of Applied Entomology 117:21–30.

Johnson, J.D., T.L. Massey, and M.M. Popp. 1992. Ethylene and induced host resistance of southern pines. Page 162 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver, Colorado, March 25–28, 1991.

United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-294.

Johnson, N.E. 1992. First American bark beetle work conference. Pages 5–8 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver. Colorado. March 25–28. 1991. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-294.

Joly, R. 1977. Drought—the danger that bark beetles and wood borers will proliferate. Revue Forestière Française (Nancy) 29:5–14.

Jones, J.M. and F.M. Stephen. 1994. Effect of temperature on development of Hymenopterous parasitoids of *Dendroctonus frontalis* (Coleoptera: Scolytidae). Environmental Entomology 23:457–463.

Jones, V.P., L.L. Burnham-Larish, and L.C. Caprio. 1992. Effect of harvest interval and cultivar on damage to macadamia nuts caused by *Hypothenemus obscurus* (Coleoptera: Scolytidae). Journal of Economic Entomology 85: 1878–1883.

Jones, V.P. and L.C. Caprio. 1992. Damage estimates and population trends of insects attacking seven macadamia cultivars in Hawaii. Journal of Economic Entomology 85: 1884–1890.

Jung, P., M. Rohde, and J. Lunderstaedt. 1994. Induced resistance in the phloem of the European larch *Larix decidua* (Mill) after attack by the great larch bark beetle *Ips cembrae* (Heer) (Col.. Scolytidae). Journal of Applied Entomology 117:427–433.

József, S. 1992. Adatok Kétújfalu (Baranya megye) bogárfaunájához (Coleoptera). [Data on the beetle fauna of Ketujfalu. Banya County (Coleoptera)]. Folia Entomologica Hungarica 53:205–224.

K

***Kadyrov, A.Kh.** 1990. A complex of xylophagous beetles developing on the walnut tree. (In Russian). Izv. Akad. Nauk Tadzh. SSR Otd Biol. Nauk 3:61–63.

Kaitera, J. and R. Jalkanen. 1994. The history of shoot damage by *Tomicus* spp. (Col.. Scolytidae) in a *Pinus sylvestris* L. stand damaged by the shoot-disease fungus *Gremmeniella abietina* (Lagerb.) Morelet. Journal of Applied Entomology 117:307–313.

Kajimura, H. and N. Hijii. 1992. Dynamics of the fungal symbiots in the gallery system and the mycangia of the ambrosia beetle. *Xylosandrus mutilatus* (Blandford) (Coleoptera: Scolytidae) in relation to its life history. Ecological Research 7:107–117.

———. 1994a. Electrophoretic comparisons of soluble mycelial proteins from fungi associated with several species of ambrosia beetles. Journal of the Japanese Forestry Society 76:59–65.

———. 1994b. Reproduction and resource utilization of the ambrosia beetle. *Xylosandrus mutilatus* in field and experimental populations. Entomologia Experimentalis et Applicata 71:121–132.

Kal'vish, T.K. 1974. The effect of temperature and relative humidity on muscardine fungi. (In Russian). Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR. Seriya Biologicheskie Nauki 5:67–77 [English translation: Canada Department of the Environment OOENV TR-1136. 1976].

Kaminska, J., L. Markowicz, J. Stolowska, and J. Gora. 1991. Bakers' yeast mediated preparation of S(+)-6-methyl-5-hepten-2-ol. the pheromone of an ambrosia beetle. Acta Biotechnologica 11:63–66.

Kannan, N., B.C. Kamanna, and B.T. Hanumantha. 1992. Association of *Botryodiplodia theobromae* with scolytid beetles of *Grevillea robusta* in a coffee plantation. Journal of Coffee Research 22:79–82.

Karadzic, D., M. Knezevic, and Lj. Mihajlovic. 1990. Uzroci susenja crnog bora (*Pinus nigra* Arn.) u kulturama na Zlatiboru sa predlogom mera zastite. [Results of research of tree-dying causes in Austrian pine (*Pinus nigra* Arn.) plantations on Zlatibor with the proposal of protection measures]. Zastita Bilja 41: 191–200.

Karalius, S. 1992. 34 new and 3 rare for Lithuania species of Coleoptera found in 1973–1991. Pages 5–11 *In* New and rare for Lithuania insect species-records and descriptions of 1992. Institute of Ecology. Lithuanian Entomological Society. Vilnius.

Kard, B.M. 1991. Inability of three entomogenous nematodes to locate and infect *Dendroctonus frontalis* (Coleoptera: Scolytidae) larvae in beetle infested loblolly pine bolts. Florida Entomologist 74:156–158.

Keane, R.E., S.F. Arno, J.K. Brown, and D.F. Tomback. 1990. Modelling stand dynamics in whitebark pine *Pinus albicaulis* forests. Ecological Modelling 51:73–96.

Kehr, R. 1991. Grenzen der Lagerung von Kalamitätsholz. [Limits for storage of roundwood after natural disasters]. Pages 43–57 *In* Alfred Wulf and R. Kehr (eds.). Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integreiten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin Dahlem 267.

Keino, K. 1969. Studies on the protection of freshly cut Japanese pine logs against fungus and insect attacks. Bulletin of the Forest Experiment Station (Meguro, Tokyo) 223:25–68.

Keirle, R.M. 1981. Rate of fungal degrade in *Pinus radiata* logs stored in the forest and at a sawmill. Australian Forestry 44:125–130.

Keirle, R.M., I.G. Johnson, and V.E. Magor. 1983. Winter storage of *Pinus radiata* logs in forest and sawmill at Tumut, New South Wales. Australian Forestry 46:210–215.

Keith, D. 1990. Qui n'a pas encore chassé dans les pièges à scolytes? [Who has never hunted with a scolytid trap?] L'Entomologiste 46:137–138.

Kelly, D.R. and M. Barghian. 1990. A note on kairomones of the great European spruce bark beetle *Dendroctonus micans*. Pages 329–334 *In* A.R. McCaffery and I.D. Wilson (eds.) Chromatographic Society Symposium: Chromatography and isolation of insect hormones and pheromones. Plenum: New York.

Kelsey, R.G. 1994a. Ethanol synthesis in Douglas-fir logs felled in November, January, and March and its relationship to ambrosia beetle attack. Canadian Journal of Forest Research 24:2096–2104.

———. 1994b. Ethanol and ambrosia beetles in Douglas-fir logs with and without branches. Journal of Chemical Ecology 20:3307–3319.

Kent, D.S. 1993. Fleshing out a beetle *Platypus tuberculosus*. Myrmecia 29(4):10–11.

Kent, D.S. and J.A. Simpson. 1992. Eusociality in the beetle *Austroplatypus incomptus* (Coleoptera: Platypodidae). Naturwissenschaften 79:86–87.

Khudaibergenov, M. and Sh. Khodzhaev. 1991. Against pests of cork elm. (In Russian). Zashchita Rastenii (Moscow) 1991(5):39.

Kiesel, K. 1988. Bibliographie der neueren Borkenkäferliteratur unter besonderer Berucksichtigung der Aggregationspheromone. [Bibliography of the new bark beetle literature with special regard to aggregation pheromones]. Freiburg im Breisgau: Forstzoologischen Institut der Albert Ludwigs Universitat.

Kight, T. 1990. Probing southern pine beetle attacks. Mississippi Agricultural and Forestry Experiment Station, Research Highlights 53(1):3.

Kile, G.A., H.J. Elliott, S.G. Candy, and M.F. Hall. 1992. Treatments influencing susceptibility of *Nothofagus cunninghamii* to the ambrosia beetle. Canadian Journal of Forest Research 22:769–775.

Kinawy, M.M., A.W. Tadors, and F.F. Abd-Allah. 1991. On the biology of the shot-hole bark beetle *Scolytus amygdali* Guer. (Coleoptera: Scolytidae) on pear trees in Egypt. Bulletin of Faculty of Agriculture, University of Cairo 42:119–128.

King, C.J. and N.J. Fielding. 1989. *Dendroctonus micans* in Britain—its biology and control. Forestry Commission Bulletin 85.

King, C.J., N.J. Fielding, and T. O'Keefe. 1991. Observations on the life cycle and behavior of the predatory beetle, *Rhizophagus grandis* Gyll. (Col., Rhizophagidae) in Britain. Journal of Applied Entomology 111: 286–296.

King, C.J. and T.M. Scott. 1975b. Testing dosage rates of methoxychlor applied by helicopter for control of Dutch elm disease. Forestry 48:177–181.

Kinn, D.N. 1991. A new *Pleuronectocelaeno* (Acari: Celaenopsidae) from Japan, with remarks on North American and European species. International Journal of Acarology 17: 103–105.

Kinn, D.N. and M.J. Linit. 1992. Temporal relationship between southern pine beetle (Coleoptera: Scolytidae) and pinewood nematode infestations in southern pines. Journal of Entomological Science 27:194–201.

Kinn, D.N., T.J. Perry, F.H. Guinn, B.L. Strom, and J. Woodring. 1994. Energy reserves of individual southern pine beetles (Coleoptera: Scolytidae) as determined by a modified phosphovanillin spectrophotometric method. Journal of Entomological Science 29: 152–163.

Kinsky, V. and V. Zumr. 1988. Podkorni spolecenstvo brouku (Coleoptera) jedle belokore (*Abies alba* Miller) v lesnim komplexu Pisecke hory. [Subcortical communities of beetles (Coleoptera) in silver fir (*Abies alba* Miller) in the forests of Pisecke Mountains]. Lesnictvi (Prague) 34:1069–1078.

Kinuura, H. and N. Hijii. 1991. Life history and reproduction of the ambrosia beetle, *Scolytoplatypus mikado* Blandford (Coleoptera, Scolytidae). Japanese Journal of Entomology 59: 763–773.

Kinuura, H., N. Hijii, and K. Kanamitsu. 1990. Symbiotic fungi of two scolytid species of the genus *Xylosandrus* (Coleoptera: Scolytidae) (*X. crassiuculus*, *X. brevis*). (In Japanese).

Journal of the Japanese Forestry Society 72:441–445.

———. 1991. Symbiotic fungi associated with the ambrosia beetle. *Scolytoplatypus mikado* Blandford (Coleoptera: Scolytidae)—succession of the flora and fungal phases in the gallery system and the mycangium in relation to the developmental stages of the beetle. Journal of the Japanese Forestry Society 73:197–205.

***Kinuura, H. and H. Makihara.** 1994. Scolytid beetles captured by black hanging traps with attracting chemicals from the Takizawa experimental forest of Iwate University. Northeast Honshu. Japan (Coleoptera: Platypodidae and Scolytidae). Bulletin of the Iwate University Forests 25:67–78.

Kipiani, R. Ya. and E.V. Tsintsadze. 1984. Control of the greater spruce beetle. (In Russian). Zashchita Rastenii (Moscow) 1984(4):33.

Kirchhoff, J.F. and E. Führer. 1990. Experimentelle Analyse der Infektion und des Entwicklungszyklus von *Malamoeba scolytii* in *Dryocoetes autographus* (Col.: Scolytidae). [Experimental analysis of infection and developmental cycle of *Malamoeba scolytii* in *Dryocoetes autographus* (Col.: Scolytidae)]. Entomophaga 35:537–544.

Kirkendall, L.R. 1990. Sperm is a limiting resource in the pseudogamous bark beetle *Ips acuminatus* (Scolytidae). Oikos 57:80–87.

———. 1993. Ecology and evolution of biased sex ratios in bark and ambrosia beetles. Pages 235–345 *In* Dana L. Wrensch and Mercedes A. Ebbert (eds.). Evolution and diversity of sex ratios in insects and mites. Chapman and Hall: New York.

Kirkendall, L.R. and N.C. Stenseth. 1990. Ecological and evolutionary stability of sperm-dependent parthogenesis: effects of partial niche overlap between sexual and asexual females. Evolution 44:698–714.

Kiselev, V.V. and V.M. Yanovskii. 1980. Autecological aspects of the population dynamics of *Ips subelongatus* Motsch. on larch. Pages 25–35 *In* A.S. Isaev (ed). Tree response to the effect of insects. (In Russian). ILid SO AN SSSR. Krasnoyarsk. USSR.

Kislev, M.E. 1992. Vegetal food of Bar Kokhba rebels at Abi'or Cave near Jericho. Review of Palaeobotany and Palynology 73:153–160.

Klein, E. 1984. *Cryphalus piceae*—the most dangerous silver fir bark beetle? Allgemeine Forstzeitschrift 1984(6):131–134.

Klepzig, K.D., K.F. Raffa, and E.B. Smalley. 1991. Association of an insect-fungal complex with red pine decline in Wisconsin. Forest Science 37:1119–1139.

———. 1992. Summary of a three year study of red pine decline in Wisconsin. *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver. Colorado. March 25–28. 1991. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-294.

———. 1993. Role of root invading insect-fungal complexes in host plant acceptance by bark beetles. Bulletin of the Ecological Society of America 74 (2 suppl.):311.

Klimetzek, D. and L. Schlenstedt. 1991. Waldschutz gegen Borkenkäfer: Der Beitrag von Duftstoffmeteorologie und Populationsdynamik. [Bark beetle control: contribution of pheromone meteorology and population dynamics]. Anzeiger für Schädlingskunde. Pflanzenschutz. Umweltschutz 64:121–128.

Kloskowski, R. 1991. Verbleib von Cypermethrin in Boden und Wasser. [Persistence of cypermethrin in soil and water]. Pages 181–182 *In* Alfred Wulf and R. Kehr (eds.). Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integreiten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Klusener, P.A.A., L. Tip, and L. Brandsma. 1991. On the direct metalation of isoprene. Tetrahedron 47:2041–2064.

Kneppeck, I.D. and F.J. Ahern. 1989. A comparison of images from a pushbroom scanner with normal color aeriel photographs for detecting scattered recent conifer mortality. Photogrammetic Engineering and Remote Sensing 55:333–337.

Knizek, M. 1994. New species of *Phloeosinus* (Chapuis) from Cyprus (Coleoptera. Scolytidae). Folia Heyrovskyana 2:124–127.

Koch, K. 1992. Die Käfer Mitteleuropas. Ökologie. Band 3. Goecke and Evers: Krefeld.

Koehler, C.S. 1990. Red turpentine beetle (RTB) control on pines. Growing Points (University of California Cooperative Extension. San Rafael. CA.) 27:2.

Kohnle, U. 1991. Verhaltensmodifizierende Duftstoffe in der Aggregation von Borkenkäfern der Gattung *Ips* DeGeer (Col., Scolytidae). [Behavior modifying aromatic substances in aggregation of bark beetles of the genus *Ips* DeGeer (Col.. Scolytidae)]. Freiburg im Breisgau: Forstzoologischen Institut der Albert Ludwigs Universitat.

Kohnle, U., M. Meyer, and J. Kluber. 1992. Untersuchungen zur Formulierung eines Lockstoffes für den grossen Kiefernborkenkäfer *Ips* *sexdentatus*. [Formulating an attractant for the pine bark beetle *Ips sexdentatus*]. Allegemeine Forst- und Jagdzeitung 163:81–87.

Kohnle, U., J.P. Vité, E.J. Baader, H. Meyer, and W. Francke. 1991. Chirality of ipsdienol and ipsenol indicates a frass system in the spruce engraver, *Ips typographus*. Naturwissenschaften 78:136–138.

Kohnle, U., S. Densborn, D. Duhme, and J.P. Vité. 1992a. Bark beetle attack on host logs reduced by spraying with repellents. Journal of Applied Entomology 114:83–90.

Kohnle, U., S. Densborn, P. Kolsch, H. Meyer, and W. Francke. 1992b. E-7 methyl-1,6-dioxaspero[4.5] decane in the chemical communication of European Scolytidae and Nitidulidae (Coleoptera). Journal of Applied Entomology 114:187–192.

Kohnle, U., A. Pajares, J. Bartels, H. Meyer, and W. Francke. 1993. Chemical communication in the European pine engraver, *Ips mannsfieldi* (Wactl) (Col., Scolytidae). Journal of Applied Entomology 115:1–7.

Kohnle, U., J.P. Vité, H. Meyer, and W. Francke. 1994. Response of four American engraver bark beetles, *Ips* spp. (Col., Scolytidae), to synthetic racemates of chiral pheromones. Journal of Applied Entomology 117:451–456.

Kohring, R. and T. Schlüter. 1989. Historische und paläntologische Bestandsaufnahme des Simetits, eines fossilen Harzes mutmasslich mio/pliozänen Alters aue Sizilien. Documenta naturae 56:33–58.

Kokta, C. 1991. Prüfung der Auswirkung von Pflanzenschutzmitteln auf die Bodenfauna im Zulassungsverfahren. [Testing the effects of pesticides on soil fauna in the registration process]. Pages 161–165 *In* Alfred Wulf and R. Kehr (eds.). Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integreiten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Kolk, A. 1985a. Forest protection guide (1). Las-Polski 9(11–14) (8-page leaflet bound in center of issue).

———. 1985b. Role of insects in oak dieback. Las-Polski 12:18.

———. 1992. Impact of bark beetles on forest management in Poland in 1981–1990. Journal of Applied Entomology 114:425–430.

Kolomiets, N.G. 1990. Peculiarities of mass propagation of dendroctonus bark beetles in Western Siberia. (In Russian). Lesovedenie 1990(6):19–25. (Translated in Soviet Forest Science 6:16–21).

Kondo, E.S. 1971. Occurrence of perithecia of *Ceratocystis ulmi* in Ontario. Canada Department of the Environment. Canadian Forestry Service. Bi-monthly Research Notes 27(1):5.

Korczynski, I. 1984. Effect of mineral fertilizers on the attraction of Scots pine shoots to *Tomicus piniperda*. Sylwan 128(10):29–32.

Korenchenko, E.A. 1990. Experimental study of the host specificity and species independence of nematodes of the genus *Parasitorhabditis*. Pages 110–112 *In* M.D. Sonin (ed). Helminths of Insects. E.J. Brill, Leiden.

———. 1992. *Panagrolaimus orthotomici* sp. nov. (Cephalobina), a nematode of bark beetles of the genus *Orthotomicus* in north-eastern Asia. Parazitologiya 26:530–534.

Korolyev, S.G. 1989. Morphology of the larvae of beetles of the genus *Platypus* Herbst (Coleoptera, Platypodidae) in connection with peculiarities of their ecology. (In Russian). Entomologicheskoye Obozreniye 2:353–360. (English translation in Entomological Review 68:109–115).

Kostyk, B.C., J.H. Borden, and G. Gries. 1993. Photoisomerization of antiaggregation pheromone verbonone: biological and practical implications with respect to the mountain pine beetle, *Dendroctonus ponderosae* Hopkins (Coleoptera: Scolytidae). Journal of Chemical Ecology 19:1749–1759.

***Kozak, V.T.** 1974c. Bark beetles of coniferous forests in the Volhynsk Poles'e. (In Russian). Zakhist Roslin 19:20–29.

Krause, S.C. and K.F. Raffa. 1994. Does defoliation differentially affect insect herbivores from separate feeding guilds? Bulletin of the Ecological Society of America 75:117.

Kretschmer, K. 1990a. Zur Wirkung von Aasgeruch auf die Fangleistung von Buchdruckerfallen. [The effect of carrion odour on the catching efficiency of spruce bark beetle traps]. Anzeiger für Schädlingskunde, Pflanzenschutz, Umweltschutz 63:46–48.

———. 1990b. Über die Beifange in Borkenkäferfallen. [Non-target insects caught in bark beetle traps]. Forst und Holz 45:273–274.

———. 1991. Die Problematik der Beifänge beim Einsatz von Aggregationspheromonen. [The problem of trapping non-target arthropods in the use of aggregation pheromones]. Pages 101–110 *In* Alfred Wulf and R.Kehr. Borkenkäfer-Gehfaren nach Sturmschäden: Möglichkeiten und Grenzen einer integrierten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Krivosheina, N.P. 1991. Relations between wood-inhabiting insects and fungi. Pages

335–346 *In* Y.N. Baranchikov, W.J. Mattson, F.P. Hain and T.L. Payne (eds.). Forest insect guilds: Patterns of interactions with host trees. United States Department of Agriculture. Forest Service. Northeastern Forest Research Station (Radnor, PA). General Technical Report NE-153.

Krokene, P. 1994. Hvordan barkbiller kan drepe trær. [How bark beetles are able to kill trees]. Fauna (Oslo) 47:242–253.

Krol, A. and A. Bakke. 1986. Effectiveness of traditional trap trees and pheromone traps in attracting *Ips typographus*. Sylwan 130(12): 29–39.

Kruger, K. and N.J. Mills. 1990. Observations on the biology of three parasitoids of the spruce bark beetle, *Ips typographus* (Col., Scolytidae): *Coeloides bostrychorum*, *Dendrosoter middendorfii* (Hym., Braconidae) and *Rhopalicus tutela* (Hym., Pteromalidae). Journal of Applied Entomology 110:281–291.

Kubisz, D. 1992. Occurrence of predators from the genus *Rhizophagus* Herbst (Col., Rhizophagidae) in pheromone traps. Journal of Applied Entomology 113:525–531.

Kucera, D.R. 1992. New Introduction: Common pine shoot beetle. United States Department of Agriculture. Forest Service. Northeastern Area. Pest Alert NA-PR-??-92.

Kula, E. 1992. Poznámky k disperzi kurovcové hmoty v porostech Lesního závodu Horní Blatná. [Notes to the dispersion of bark beetle mass in the stands of the forest enterprise Horni Blatna]. Lesnictví (Prague) 38:221–238.

Kulhavy, D.L., R. Costa, R.N. Conner, et al. 1992. Forest protection in wilderness management: the southern pine beetle and the red-cockaded woodpecker. Pages 2–8 *In* E.E. Krumpe and P.D. Weingart (eds.). Management of park and wilderness preserves: Proceedings of the 4th World Wilderness Congress; Estes Park, CO. University of Idaho (Moscow, ID). Wilderness Research Center.

Kumar, P.K.V., C.B. Prakasan, and C.K. Vijayalakshmi. 1990. Coffee berry borer *Hypothenemus hampei* (Coleoptera: Scolytidae): first record from India. Journal of Coffee Research 20:161–164.

Kuschel, G. 1990. Beetles in a suburban environment: a New Zealand case study: The identity and status of Coleoptera in the natural and modified habitats of Lynfield, Auckland (1974–1989). DSIR Plant Protection Report 3.

Köhler, F. 1992. Anmerkungen zur Käferfaune der Rheinprovinz VI—Bermerkenswerte Neu- und Wiederfunde (Ins., Col.). Mitteilungen der Arbeitsgemeinschaft Rheinisch Koleopterologen (Bonn) 2:123–130.

König, E. 1992. Mass trapping of *Trypodendron lineatum* Ol. (Col., Scolytidae): Impact of the infestation of stored logs and cost/benefit analysis of a five year field experiment. Journal of Applied Entomology 114:233–239.

Köpp, H. 1991. Aquatische Ökotoxikologie von Cypermethrin. [Aquatic ecotoxicology of cypermethrin]. Pages 183–190 *In* Alfred Wulf and R. Kehr (eds.). Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integreiten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

L

LaSalle, J. 1990. A new genus and species of Tetrastichinae (Hymenoptera: Eulophidae) parasitic on the coffee berry borer, *Hypothenemus hampei* (Ferrari) (Coleoptera: Scolytidae). Bulletin of Entomological Research 80:7–10.

***Labedzki, A.** 1990. Wazki roznoskrzydle (Odonata: Anisoptera) drzewostanow sosnowych a ich potencjalne mozliwosci regulacji liczebnosci szkodliwych owadow lesnych. [Dragonflies (Odonata: Anisoptera) of Scots pine stands and their potential for regulating numbers of harmful forest insects]. Prace z Zakresu Nauk Lesnych (Sub-series of Prace Komisji Nauk Rolniczych i Komisji Nauk Lesnych) 68:39–45.

Lam, D.K.W. and J.A. McLean. 1992. Seasonal abundance and distribution of ambrosia beetles on the north arm of the Fraser River, British Columbia. Journal of the Entomological Society of British Columbia 89:48–53.

***Lanfranco, D.M.** 1991 (1993). Synopsis of insects attacking lenga (*Nothofagus pumilo* (Poepp. et Endl.)) Krass forests in Magallanes. Anales del Instituto de la Patagonia Serie Ciencias Naturales 20:89–93.

Langor, D.W. 1991. Arthropods and nematodes co-occurring with the eastern larch beetle *Dendroctonus simplex* (Col.: Scolytidae), in Newfoundland. Entomophaga 36:303–314.

———. 1994. Western ash bark beetle. Natural Resources Canada. Canadian Forestry Service. Northwest Region. Northern Forestry Centre (Edmonton, AB). Leaflet 24.

Langor, D.W. and C.R. Hergert. 1993. Life history, behaviour, and mortality of the western ash bark beetle, *Hylesinus californicus* (Swaine) (Coleoptera: Scolytidae), in southern Alberta. The Canadian Entomologist 125: 801–814.

Langor, D.W. and J.R. Spence. 1991. Host effects on allozyme and morphological variation of the mountain pine beetle, *Dendroctonus ponderosae* Hopkins (Coleoptera: Scolytidae). The Canadian Entomologist 123:395–410.

Langor, D.W., J.R. Spence, and G.R. Pohl. 1990. Host effects on fertility and reproductive success of *Dendroctonus ponderosae* Hopkins (Coleoptera: Scolytidae). Evolution 44:609–618.

Långström, B. and C. Hellqvist. 1990. Spatial distribution of crown damage and growth losses caused by recurrent attacks of pine shoot beetles in pine stands surrounding a pulp mill in southern Sweden. Journal of Applied Entomology 110:261–269.

———. 1991. Shoot damage and growth losses following three years of *Tomicus* attacks in Scots pine stands close to a timber storage site. Silva Fennica 25:133–145.

———. 1992. Height growth recovery and crown development in top-damaged *Pinus sylvestris* trees. Scandinavian Journal of Forest Research 7:237–247.

———. 1993a. Induced and spontaneous attacks by pine shoot beetles on young Scots pine trees: tree mortality and beetle performance. Journal of Applied Entomology 115:25–36.

———. 1993b. Scots pine susceptibility to attack by *Tomicus piniperda* L. as related to pruning date and attack density. Annales des Sciences Forestières 50:101–117.

Långström, B., O. Tenow, A. Ericsson, C. Hellqvist, and S. Larsson. 1990. Effects on shoot pruning on stem growth, needle biomass, and dynamics of carbohydrates and nitrogen in Scots pine as related to season and tree age. Canadian Journal of Forest Research 20:514–523.

Långström, B., C. Hellqvist, A. Ericsson, and R. Gref. 1992. Induced defence reaction in Scots pine following stem attacks by *Tomicus piniperda*. Ecography 15:318–327.

Långström, B., H. Solheim, C. Hellqvist, and R. Gref. 1993. Effects of pruning young Scots pines on host vigour and susceptibility to *Leptographium wingfieldi* and *Ophiostoma minus*, two blue-stain fungi associated with *Tomicus piniperda*. European Journal of Forest Pathology 23:400–415.

***Lanier, G.N. and J.W. Peacock.** 1981. Vectors of the pathogen. Pages 14–16 *In* R.J. Stipes and R.J. Campana (eds.). Compendium of elm disease. American Phytopathological Society, St. Paul, Minnesota.

Lanier, G.N., S.A. Teale, and J.A. Pajares. 1991. Biosystematics of the genus *Ips* (Coleoptera: Scolytidae) in North America: review of the *Ips calligraphus* group. The Canadian Entomologist 123:1103–1124. (Data in this reference recorded in 1992 catalog).

Lanier, L. 1993. Diseases of the mountain ash. (In French). Revue Forestière Française (Nancy) 45:343–344.

Lapis, E.B. 1986. Observations on the seasonal distribution of *Ips calligraphus* Germar, Baguio City, Philippines. Sylvatrop 11: 61–67.

Laplante, S., Y. Bousquet, P. Bélanger, and C. Chantal. 1991. Liste des espèces de coléoptères du Québec. Fabreries, Supplement 6.

Larochelle, A. 1979. Liste des coléoptères du Québec. Cordulia, Supplément 9.

Larsen, S.W., C.L. Howell, K.J. Densmore, and R.A. Roeper. 1994. Seasonal patterns of flight and attack of maple saplings by the ambrosia beetle *Corthylus punctatissimus* (Coleoptera: Scolytidae) in central Michigan. Great Lakes Entomologist 27:103–106.

Lawrence, J.F. and E.B. Britton. 1994. Australian Beetles. Melbourne University Press: Melbourne.

Lawrence, J.F., A. Hastings, M. Dallwitz, and T. Paine. 1993. Beetle larvae of the world. Commonwealth Scientific and Industrial Research Organization, Division of Entomology, Canberra, Australia. CD-ROM.

Lawson, S.A. 1993. Overwintering mortality of *Ips grandicollis* Eichh. (Col., Scolytidae) and its parasitoid, *Roptrocerus xylophagorum* Ratz. (Hym., Pteromalidae), in south Australia. Journal of Applied Entomology 115: 240–245.

Lawson, S.A. and F.D. Morgan. 1992. Rearing of two predators, *Thanasimus dubius* and *Temnochila virescens*, for the biological control of *Ips grandicollis* in Australia. Entomologia Experimentalis et Applicata 65:225–233.

———. 1993. Prey specificity of adult *Temnochila virescens* F. (Col., Trogositidae), a predator of *Ips grandicollis* Eichh. (Col., Scolytidae). Journal of Applied Entomology 115:139–144.

Lebedev, A.V. 1991. Oleoresin indication of the resistance of Norway spruce trees to *Ips typographus* bark beetles. (In Russian). Izvestiya Vysshikh Uchebnykh Zavedenii, Lesnoi Zhurnal 1:18–22.

***Lebedev, A.V. and E.A. Ivanova.** 1993. The pathology of larch trees in research stands. (In Russian). Izvestiya Vysshikh Uchebnykh Zavedenii, Lesnoi Zhurnal 5–6:14–19,203.

Lee, S.M., H.Y. Choo, N.C. Park, Y.S. Moon, and J.B. Kim. 1990. Nematodes and insects associated with dead trees, and pine wood nematode detection in *Monochamus alternatus*. (In Korean). Korean Journal of Applied Entomology 29:14–19.

Legrand, P. 1993. Management of biological control against *Dendroctonus micans* Kug. infestation of spruce in Auvergne and Limousin (Coleoptera. Scolytidae). (In French). Revue des Sciences Naturelles d'Auvergne 56:49–57.

Lekander, B. 1952. A new method of controlling *I. typographus*. Meddelanden Fran Statens Skogsforskningsinstitut 41:31.

———. 1984. Date of flight commencement of *Tomicus piniperda* in Sweden during 1970–1979. Sveriges Skogsvardsforbunds Tidskrift 82:7–21.

Lemaster, R.L., H.E. Troxell, and G.R. Sampson. 1983. Wood utilization potential of beetle-killed lodgepole pine for solid wood products. Forest Products Journal 33:64–68.

Lempériere, G. 1994. Écologie d'un ravageur forestier *Dendroctonus micans* (Kug.) (Col. Scolytidae). l'Hylésine géant de l'Epicéa. $1^{\text{ière}}$ Partie: Biologie et biogéographie. [Ecology of the great European spruce bark beetle. *Dendroctonus micans*. Part 1: biology and biogeography]. Ecologie 25:31–38.

Lempériere, G. and C.B. Malphettes. 1983. Observations on the ecology of two beetle pests of ash. *Leperisinus fraxini* (Coleoptera. Scolytidae) and *Stereonychus fraxini* (Coleoptera: Curculionidae). (In French). Revue Forestière Française (Nancy) 35:283–288.

Lessard, E.D. and J.M. Schmid. 1990. Emergence, attack densities, and host relationships for the Douglas-fir beetle (*Dendroctonus pseudotsugae* Hopkins) in northern Colorado. Great Basin Naturalist 50:333–338.

Lévieux, J. and P. Cassier. 1994. La vection de champignons pathogènes des résineux par les xylophages forestiers européens. Approche synthétique. (The transportation of pathogenic fungi to conifers by European xylophagous beetles). (In French). Année Biologique 33:19–37.

Lévieux, J., P. Cassier, D. Guillaumin, and A. Roques. 1991. Structures implicated in the transportation of a pathogenic fungi by the European bark beetle. *Ips sexdentatus* Boerner: Ultrastructure of a mycangium. The Canadian Entomologist 123:245–254.

Lewinsohn, D., E. Lewinsohn, C.L. Bertagnolli, and A.D. Patridge. 1994. Blue-stain fungi and their transport structures on the Douglas-fir beetle. Canadian Journal of Forest Research 24:2275–2283.

Lewis, E.E. and J.H. Cane. 1990a. Pheromonal specificity of southeastern *Ips* pine bark beetles reflects phylogenetic divergence (Coleoptera: Scolytidae). The Canadian Entomologist 122:1235–1238.

———. 1990b. Stridulation as a primary antipredator defence of a beetle. Animal Behaviour 40:1003–1004.

———. 1992. Inefficacy of courtship stridulation as a premating ethological barrier for *Ips* bark beetles (Coleoptera: Scolytidae). Annals of the Entomological Society of America 85: 517–524.

Lhost, M.G. 1991. Coléoptères intéressants pour la faune de Belgique et du nord de la France. [Interesting Coleoptera for Belgium and northern France]. Bulletin & Annales de la Société royal belge d'Entomologie 127:348–350.

Lie, R., W.Y. Garner, and J. Harvey, Jr. 1984. Mass trapping of *Ips typographus* with pheromone-baited traps. Pages 49–53 *In* W.Y. Garner and J. Harvey. Jr. (eds.). Chemical and biological control in forestry. American Chemical Society: Washington. D.C.

Lieutier, F. 1990a. Les reactions de defense du pin sylvestre (*Pinus sylvestris*) contre les attaques d'insectes scolytides. [The defense reactions of Scots pine (*Pinus sylvestris*) to the attacks of bark beetles]. Comptes Rendus de l'Académie d'Agriculture Française 31:3–12.

* ———. 1990b. Hypothetical working mechanisms of the induced defence reaction of conifers to bark beetles and their associated Ophiostoma. *In* Taxonomy and biology of the Ophiostomatales. International Symposium. Bad Windsheim. West Germany. August 21–24. 1990.

* ———. 1990c. Interactions between *Dendroctonus micans* and the host tree. *In* Integrated control of conifer bark beetles. E.C. program working party. Brussels. Belgium. February 12–13. 1990.

———. 1991. Les coléoptères Scolytidae en France et les recherches menées par l'INRA. [Scolytid coleopterans in France and research funded by the INRA]. Bulletin de la Société Zoologique de France. Evolution et Zoologie 116:275–281.

———. 1992. Les réactions de défense des conifères et stratégies d'attaque de quelques Scolytides européens. [Conifer defence reactions and attack strategies of some European Scolytidae]. Mémoires de la Société royal belge d'Entomologie 35:529–539.

Lieutier, F., C. Cheniclet, and J. Garcia. 1989. Comparison of the defense reactions of *Pinus pinaster* and *Pinus sylvestris* to attacks by two bark beetles (Coleoptera: Scolytidae) and their associated fungi. Environmental Entomology 18:228–234.

Lieutier, F., A. Yart, J. Garcia, and M-C Ham. 1990. Cinétique de croissance des champignons associés à *Ips sexdentatus* Boern. et *Tomicus piniperda* L. (Coleoptera: Scolytidae) et des réactions de défense des pins sylvestres (*Pinus sylvestris* L.) inoculés. [Kinetics of growth of fungi associated with *Ips sexdentatus* Boern. and *Tomicus piniperda* L. (Coleoptera: Scolytidae) and the defense reaction of the inoculated Scots pine]. Agronomie 10:243–256.

Lieutier, F., J. Garcia, A. Yart, G. Vouland, M. Pettinetti, and M. Morelet. 1991a. Ophiostomatales (Ascomycètes) associées à *Ips acuminatus* Gyll. (Coleoptera: Scolytidae) sur le pin sylvestre (*Pinus sylvestris* L.) dans le Sud-Est de la France et comparaison avec *Ips sexdentatus* Boern. [Ophiostomatales Ascomycetes associated with *Ips acuminatus* Gyll. (Coleoptera: Scolytidae) in Scots pine *Pinus sylvestris* L. in south-eastern France and comparison with *Ips sexdentatus* Boern.]. Agronomie 11:807–818.

Lieutier, F., A. Yart, C. Jay-Allemand, and L. Delorme. 1991b. Preliminary investigations on phenolics as a response of Scots pine phloem to attacks by bark beetles and associated fungi. European Journal of Forest Pathology 21:354–364.

Lieutier, F., G. Vouland, M. Pettinetti, J. Garcia, P. Romary, and A. Yart. 1992. Defence reactions of Norway spruce (*Picea abies* Karst.) to artificial insertion of *Dendroctonus micans* Kug. (Col., Scolytidae). Journal of Applied Entomology 114:174–186.

Lieutier, F., J. Garcia, P. Romary, A. Yart, H. Jactel, and D. Sauvard. 1993. Inter-tree variability in the induced defense reaction of Scots pine to single inoculations by *Ophiostoma brunneo-ciliatum*, a bark-beetle-associated fungus. Forest Ecology and Management 59: 257–270.

Lindelow, A. 1992a. *Hylastes cunicularis*: host orientation, impact of feeding in spruce plantations, and population sizes in relation to seedling maturity (Coleoptera: Scolytidae). Unpublished dissertation. Swedish University of Agricultural Sciences, Uppsala.

———. 1992b. Seedling mortality caused by *Hylastes cunicularius* Er. (Coleoptera, Scolytidae) in *Picea abies* plantations in northern Sweden. Scandinavian Journal of Forest Research 7:387–392.

Lindelow, A., H.H. Eidmann, and H. Nordenheim. 1993. Response on the ground of bark beetle and weevil species colonizing conifer stumps and roots to terpenes and ethanol. Journal of Chemical Ecology 19:1393–1403.

Lindelow, A., B. Risberg, and K. Sjodin. 1992. Attraction during flight of scolytids and other bark- and wood-dwelling beetles to volatiles from fresh and stored spruce wood. Canadian Journal of Forest Research 22:224–228.

Lindeman, G.V. 1988. Moisture potential in the phloem as an indicator of water supply and resistance to attack by wood-destroying insects in drought conditions. (In Russian). Lesovedenie 1988(5):20–29.

———. 1994. Structure of populations in insects-xylophages. (In Russian). Lesovedenie 1994(3):3–9.

Lindgren, B.S. 1990. Ambrosia beetles. Journal of Forestry 88(2):8–11.

———. 1992. Attraction of Douglas-fir beetle, spruce beetle and a bark beetle predator (Coleoptera: Scolytidae and Cleridae) to enantiomers of frontalin. Journal of the Entomological Society of British Columbia 89:13–17.

Lindgren, B.S. and J.H. Borden. 1993. Displacement and aggregation of mountain pine beetles, *Dendroctonus ponderosae* (Coleoptera: Scolytidae), in relation to their antiaggregation and aggregation pheromones. Canadian Journal of Forest Research 23:286–290.

Lindgren, B.S. and R.G. Fraser. 1994. Control of ambrosia beetle damage by mass trapping at a dryland log sorting area in British Columbia. Forestry Chronicle 70:159–163.

Lindgren, B.S., G. Gries, H.D. Pierce, Jr., and K. Mori. 1992. *Dendroctonus pseudotsugae* Hopkins (Coleoptera: Scolytidae): Production of and response to enantiomers of 1-methylcyclohex-2-en-1-ol. Journal of Chemical Ecology 18:1201–1208.

Linhart, Y.B., M.A. Snyder and J.P. Gibson. 1994. Differential host utilization by two parasites in a population of ponderosa pine. Oecologia 98:117–120.

Lister, C.K., J.M. Schmid, S.A. Mata, D. Haneman, C. O'Neil, J. Pasek and L. Sower. 1990. Verbenone bubble caps ineffective as a preventive strategy against mountain pine beetle attacks in ponderosa pine. United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station (Ft. Collins, CO). Research Note RM-501. 3 pp.

Littke, W. 1992. Monitoring pest populations following precommercial thinning operations in western forests. Page 105 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference, Denver, Colorado, March 25–28, 1991. United States Department of Agriculture, Forest Service, Pacific Northwest Research

Station (Portland. OR). General Technical Report PNW-GTR-294.

Liu, C.K., P.S. Wang and J. Wu. 1990. Releases of *Cryptolestes turcicus* (Grouvelle) to control *Cryphalus exiguus* Blandford (Coleoptera: Scolytidae) in mulberry. (In Chinese). Natural Enemies of Insects 12:199.

Liu, Y.-B. and J.A. McLean. 1993. Observations on the biology of the ambrosia beetle *Gnathotrichus retusus* (LeConte) (Coleoptera: Scolytidae). The Canadian Entomologist 125: 73–83.

***Liu, Z.F., Q.H. Zhang, D. Chu, Y.J. Sun, M.N. Sheng, S.B. Xu, X.D. Zhang, C.H. Shao and S.C. Han.** 1990. Analysis of the incidence of stem borers in burned forests in Danxinganling Mountains. (In Chinese). Forest Pest and Disease 1:38–40.

Livingston, R.L. and M.D. McGregor. 1994. Development and operational use of the antiaggregative pheromone MCH to prevent attack of the Douglas-fir beetle in windthrow. Pages 22–25 *In* Patrick J. Shea (tech. coord.). Proceedings of the Symposium on Management of Western Bark Beetles with Pheromones: Research and Development. Kailua-Kona. Hawaii. June 22–25. 1992. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-150.

Livingston, W.H. and R.W. Davidson. 1987. *Ophiostoma subannulatum*. a new fungal species pathogenic to grand fir roots. Mycologia 79:144–147.

Lobinger, G. 1994. Air temperature as a limiting factor for flight activity of two species of pine beetles. *Ips typographus* L. and *Pityogenes chalcographus* L. (Col.. Coleoptera. Scolytidae). (In German). Anzeiger für Schädlingskunde. Pflanzenschutz. Umweltschutz 67: 14–17.

Locatelli, D.P. and C.A.M. Vigano. 1991. Contaminazioni entomatiche in caffe crudo e tostato. [Insect infestations in uncooked and roasted coffee beans]. Industrie Alimentari 30:977–981.991.

Lock, M. 1976. Improved synthesis of endo-brevicomin for the control of bark beetles (Coleoptera: Scolytidae). Journal of Chemical Ecology 2:83–86.

Loeb, R.E. 1992. Long-term human disturbance of an urban park forest. New York City. Forest Ecology and Management 49:293–309.

Lofting, E.C.L. 1952. *P. contorta* in Denmark. Dansk Skovforeingens Tidsskrift 37:45–61.

Lombardero, M.J. 1992a. Aportacion al gênero *Pityogenes* Bedel. 1888 (Coleoptera. Scolytidae) de la Peninsula Iberica. [Contribution to the knowledge of the genus *Pityogenes* Bedel 1888. (Coleoptera. Scolytidae) from the Iberian Peninsula]. Boletim da Sociedade Portuguesa de Entomologia 139:233.

———. 1992b. Algunos ensayos con el uso de feromonas sinteticas para la atraccion de escolitidos en Galicia (NW de España). [Some studies on the use of synthetic pheromones for trapping Scolytidae in Galicia (northwestern Spain)]. Boletim da Sociedade Portuguesa de Entomologia 139:242.

———. 1994. Estudio de los Scolytidae (O. Coleoptera) de Galicia. Departmento de Biologia Animal. Universidad de Santiago de Compostela. Santiago de Compostela.

Lombardero, M.J. and F. Novoa. 1993. *Liparthrum mandibulare* Wollaston. 1854 (Coleoptera: Scolytidae). primera cita para la fauna de Europa continental. [*Liparthrum mandibulare* Wollaston. 1854 (Coleoptera: Scolytidae). the first record from continental Europe]. Elytron 7:105–110.

———. 1994. Datos faunísticos sobre escolítidos ibéricos (Coleoptera: Scolytidae). [Faunistic data of Iberian Scolytidae (Coleoptera)]. Boletin de la Asociacion Española de Entomologia 18:181–186.

Lopez-Colon, J.I. 1991. Sobre la presencia de *Pityophthorus pinsapo* Pfeffer. 1982 en Sièrra Bermeja (Andalucia occidental. sur de España) (Col. Scolytidae. Scoltinae. Corthylini). [On the presence of *Pityophthorus pinsapo* Pfeffer. 1982 in Sierra Bermeja (western Andalusia. Southern Spain) (Col. Scolytidae. Scolytinae. Corthylini)]. Nouvelle Revue d'Entomologie 8:84.

Lorio, Jr., P.L. 1993. Environmental stress and whole-tree physiology. Pages 81–101 *In* T.D. Schowalter and G.M. Filip (eds.). Beetle-pathogen interactions in conifer forests. Academic Press: London.

———. 1994a. The relationship of oleoresin exudation pressure (or lack thereof) to flow from wounds. Journal of Sustainable Forestry 1:81–93.

———. 1994b. Southern pine beetle risk rating. Pages 162–171 *In* J.B. Baker (comp). Proceedings of the symposium on ecosystem management research in the Ouachita Mountains: pretreatment conditions and preliminary findings. Hot Springs. Arkansas. October 26–27. 1993. United States Department of Agriculture. Forest Service. Southern Forest Experiment Station (New Orleans. LA). General Technical Report SO-112.

Lorio, Jr., P.L., M.P. Ayres, and J.P. Dunn. 1993. Moderate water deficit in loblolly pine

Pinus taeda L. reduces growth but enhances resistance to the southern pine beetle. Bulletin of the Ecological Society of America 74 (2 suppl.):336–337.

Lorio, Jr., P.L., R.A. Sommers, C.A. Blanche, J.D. Hodges, and T.E. Nebeker. 1990. Modeling pine resistance to bark beetles based on growth and differentiation balance principles. Pages 402–409 *In* Robert K. Dixon et al. (eds.). Process modeling of forest growth responses to environmental stress. Timber Press: Portland, OR.

Love, L.D. 1953. Watershed management in the Colorado Rockies. Journal of Soil and Water Conservation 8:107–112.

Lovelady, C.N., P.E. Pulley, R.N. Coulson, and R.O. Flamm. 1991. Relation of lightning to herbivory by the southern pine bark beetle guild (Coleoptera: Scolytidae). Environmental Entomology 20:1279–1284.

Lowell, E.C., S.A. Willits, and R.L. Krahmer. 1992. Deterioration of fire-killed and fire-damaged timber in the western United States. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR 292.

Löyttyniemi, K. 1983. Flight periods of some birch timber species. Silva Fennica 17: 419–422.

* ———. 1989. Insect borer risk in harvesting of miombo timber. Forest Department, Division of Forest Products Research (Kitwe) Zambia. Technical Note 31.

Löyttyniemi, K. and O. Uusvaara. 1977. Insect attack on pine and spruce sawlogs felled during the growing season. Metsantutkimuslaitoksen Julkaisuja 89(6).

Lozano, C., N.A.C. Kidd and M. Campos Aranda. 1993. Studies on the population dynamics of the bark beetle *Leperisinus varius* (Fabr.) (Col., Scolytidae) on European olive (*Olea europaea*). Journal of Applied Entomology 116:118–126.

Lozano Martin, C. 1993. Estudio bio-ecológico de *Hylesinus varius* (Fabricius, 1775) (Col: Scolytidae) en la provincia de Granada. Unpublished dissertation, Universidad de Granada.

Lozano Martin, C. and M. Campos Aranda. 1991a. Estudio de la distribución de *Leperisinus varius* (Coleoptera: Scolytidae) en un olivar de la provincia de Granada. [Study of the distribution of *Leperisinus varius* (Coleoptera: Scolytidae) on olives in the province of Granada]. Boletin de Sanidad Vegetal, Plagas 17:453–457.

———. 1991b. Preliminary study of the entomofauna of the bark beetle *Leperisinus varius* (Coleoptera, Scolytidae). Redia 74(3, Appendix):241–243.

———. 1992. Oviposición y fecundidad de *Leperisinus varius* (Fabricius, 1775) (Col.: Scolytidae), en un olivar de la provincia de Granada (España). [Oviposition and fecundity of *Leperisinus varius* (Fabricius, 1775) (Col.: Scolytidae) in olive groves of the district of Granada, Spain]. Boletin de la Asociacion Española de Entomologia 16:105–112.

———. 1993a. Colonization and the estimation of population size in the bark-beetle *Hylesinus varius* (Coleoptera: Scolytidae), a pest of olives in southern Spain. International Journal of Pest Management 39:277–280.

———. 1993b. Laboratory rearing of *Hylesinus varius* (Col.: Scolytidae). Mitteilungen der Schweizerischen Entomologischen Gesellschaft 66:317–322.

Lozano Martin, C., M. Campos Aranda, N.A.C. Kidd, and M.A. Jervis. 1994. The role of parasitism and intraspecific competition in the population dynamics of the bark beetle. *Leperisinus varius* (Fabr.) (Col., Scolytidae) on European olives (*Olea europea* L.). Journal of Applied Entomology 117: 182–189.

Lozzia, G.C. 1993. Outbreaks of *Ips typographus* (L.) (Coleoptera Scolytidae) in spruce stands of northern Italy. Bolletino di Zoologia Agraria e di Bachicoltura 25:173–182.

Luik, A. and K. Voolma. 1990. Hibernation peculiarities and cold-hardiness of the great spruce bark beetle. *Dendroctonus micans* Kug. Eesti Teaduste Akadeemia Toimetised. Bioloogia 39:214–218.

Luitjes, J. 1977. Development of insects in coniferous trees damaged by the gales of November 1972 and April 1973. Nederlands Bosbouw Tijdschrift 49:10–26.

Lundberg, S. 1989. Sällsynta skalbaggar från gammal granskog I Blakölen-reservatet I Norrbotten. [Rare beetle species collected chiefly in window traps in the old spruce forest at Blakolen, northern Sweden]. Entomologisk Tidskrift 110:139–144.

Lundquist, J.E. 1991. Distribution of *Armillaria* root disease in the Black Hills. United States Department of Agriculture, Forest Service, Rocky Mountain Region (Lakewood, CO). Renewable Resources Technical Report R2-49.

Luo, Q.Y. and D.P. He. 1990. Preliminary studies of *Xyleborus fornicatus* [*Euwallacea fornicatus*] Eichh. (In Chinese). Natural Enemies of Insects 12:95–99.

Lutyk, P. and H. Swiezynska. 1984. Trials of the use of *Beauveria bassiana* for the control of *Tomicus piniperda* in wood stacks. (In Polish). Sylwan 128:41–45.

Lyszkowski, R.M. 1993. *Pityopthorus lichtensteini* (Ratzburg). (Col.: Scolytidae) rediscovered in Aberdeenshire, and a problem partially solved. Entomologist's Record and Journal of Variation 105:229–231.

M

Maes, J.M. 1992. Plagas insectiles de Nicaragua. I. Coleópteros asociados con *Pinus oocarpa* Schiede. [Insects pests of Nicaragua. I. Coleoptera associated with *Pinus oocarpa* Schiede]. Manejo Integrado de Plagas 23: 13–16.

Maetô, K., K. Ozaki, Y. Hayashi, and C. Koizumi. 1991. Wilt of Japanese larch inoculated with *Ips cembrae*-associated blue-stain fungi *Ceratocystis piceae*. (In Japanese). Japanese Forestry Society, Hokkaido (Journal title in Japanese) 39:79–82.

Magasi, L.P., K.J. Harrison, D.A. Urquhart, and D.M. Murray. 1993. Three decades of Dutch elm disease in Fredericton, N.B.: 1961–1990. Natural Resources Canada. Canadian Forestry Service. Maritimes Region (Fredericton, N.B.). Information Report M-X-185E.

Maia, J.L.S. 1988. Fauna's management at implanted forests of tropical pines. Pages 266–276 *In* J.G. de A. Carneiro, et al. (eds.). Bilateral symposium Brazil-Finland on forestry actualities, October 16–22, 1988. Curitiba, Parana, Brazil.

***Maksymov, J.K.** 1977. The drought of 1976 and the bark beetle situation in spring 1977. (In German). Schweizerische Zeitschrift für Forstwesen 128:154–160.

Malphettes, C.B. and F.X. Saintonge. 1991. Etude de la remanence du Stenoprax dans le cadre de la surveillance des populations du stenographe *Ips sexdentatus* (Coleoptera: Scolytidae). [Study of the persistance of Stenoprax during a survey of populations of the engraver beetle *Ips sexdentatus* (Coleoptera: Scolytidae)]. Revue Forestière Française (Nancy) 43:403–412.

Mamaev, Y.B. 1988. Determining the species activity of xylophages in complex foci. (In Russian). Lesnoe Khozyaistvo 11:46–48.

———. 1990. Foci of stem pests in larch forests of the Tuva ASSR damaged by *Dendrolimus sibiricus*. (In Russian). Izvestiya Vysshikh Uchebnykh Zavedenii. Lesnoi Zhurnal 1990(2):16–19.

***Mameav, Y.B., N.P. Krivosheina, and P.A. Khomemtovskii.** 1989. Coleoptera of the stem complex in the forests of central Kamchatka. (In Russian). Izvestiya Vysshikh Uchebnykh Zavedenii. Lesnoi Zhurnal 1989(4):22–25.

Mani, E., U. Remund and F. Schwaller. 1990a. Le bostryche disparate, *Xyleborus dispar* F. (Coleoptera: Scolytidae) en aboriculture fruitière et en viticulture. Importance, biologie, lutte, développement et utilisation d'un piège à ethanol efficace, observations du vol. [The bark beetle, *Xyleborus dispar* F. (Coleoptera: Scolytidae) in fruit- and vine-growing. Importance, biology, control, development and utilization of an effective ethanol trap, observations of flight]. Revue Suisse de Viticulture, d'Arboriculture et d'Horticulture 22: 109–116.

———. 1990b. Der Ungleiche Holzbohrer, *Xyleborus dispar* F. Coleoptera: Scolytidae) im Obst- und Weinbau. Bedeutung, Biologie, Bekampfung, Entwicklung und Einsatz einer wirksamen Alkoholfalle, Flugbeobbachtungen. Landwirtschaft Schweiz 3:105–112.

———. 1992. Attack of the bark beetle, *Xyleborus dispar* F., (Coleoptera: Scolytidae) in orchards and vineyards. Importance, biology, flight observations, control, development and use of an efficient ethanol trap. Acta Phytopathologica et Entomologica Hungarica 27: 425–433.

Mansingh, A. 1991. Limitations of insecticides in the management of the coffee berry borer *Hypothenemus hampei* Ferrari. Journal of Coffee Research 21:67–98.

Marinoni, R.C., L.M. de Almeida, D.S. Napp and G.H. Rosado-Neto. 1992. Primeira lista do material-tipo de Coleoptera da coleção de entomologia Pe. J.S. Moure, do Departmento de Zoologia da Universidade Federal do Parana. [First list of Coleoptera type-material of the entomological collection Pe. J.S. Moure of the "Departmento de Zoologia da Universidade Federal do Parana"]. Revista Brasileira de Zoologia 9:99–126.

Markalas, S. 1991. Rinden- und holzbohrende Insektenarten in Kiefern (*Pinus halepensis*, *P. brutia* und *P. nigra*) nach Waldbränden in Griechenland. [Bark- and wood-boring species in pines (*Pinus halepensis*, *P. brutia* and *P. nigra*) after forest fires in Greece]. Anzeiger für Schädlingskunde, Pflanzenschutz, Umweltschutz 64:72–75.

Marsden, M.A. 1983. Modeling the effect of wildfire frequency on forest structure and succession in the northern Rocky Mountains.

Journal of Environmental Management 16:45–62.

Marsden, M.A., B.B. Eav, and M.K. Thompson. 1994. User's guide to the Douglas-fir beetle impact model. United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station (Ft. Collins, CO). General Technical Report RM-250.

Maslov, A.D. and L.S. Matusevich. 1990. Mortality factors of typographer bark beetle. (In Russian). Lesovedenie 1990(6):11–18 (Translated in Soviet Forest Sciences 6:9–15).

Mason, P.L. and N.J. Holliday. 1993. Overwintering of Native Elm bark beetles, *Hylurgopinus rufipes* (Coleoptera: Scolytidae), in American elm in Manitoba. Proceedings of the Entomological Society of Manitoba 49:42.

Massel', G.I., A.S. Rozhkov, A.I. Mikhaleva, A.N. Vasil'ev, and B.A. Trofimov. 1984. New substances for protecting felled wood against wood-destroying insects. (In Russian). Lesnoi Zhurnal 2:94–97.

Mathew, G. and K.S.S. Nair. 1985. Insects associated with forest plantations of *Paraserianthes falcataria* in Kerala, India. Malayan Forester 48:200–205.

Matsuda, K. 1982. Studies on the early phase of the regeneration of a konara oak (*Quercus serrata* Thunb.) secondary forest. I. Development and premature abscissions of konara oak acorns. Japanese Journal of Ecology 32: 293–302.

Mattson, W.J. 1989. Contributions to the biology of the jack pine tip beetle, *Conophthorus banksianae* (Coleoptera: Scolytidae), in Michigan. Pages 117–132 *In* Proceedings of the 3rd Cone and Seed Insects Working Party Conference, June 26–30, 1988, Victoria, British Columbia. Forestry Canada, Pacific Forestry Centre.

Mattson, W.J. and S.H. Strauss. 1986. Are cone volatiles involved in cone finding by the red pine cone beetle, *Conophthorus ponderosae* (Coleoptera: Scolytidae)? Pages 185–204 *In* A. Roques (ed). Proceedings of the 2nd Conference of the Cone and Seed Insects Working Party S2.07-01, September 3–5, 1986, Briancon, France. Station de Zoologie Forestière: Olivet, France.

May, B.M. 1993. Larvae of Curculionoidea (Insecta: Coleoptera): a systematic overview. Fauna of New Zealand, Number 28. Manaaki Whenua Press: Lincoln, New Zealand. 226 p.

Mayer, M.S. and J.R. McLaughlin. 1990. Handbook of insect pheromones and sex attractants. CRC Press Inc.: Boca Raton, Florida.

Mazur, S. 1975. Economic significance of the predators *Paromalus parallelepidedus* and *Plegaderus vulneratus* (Col., Histeridae) in the control of *Tomicus piniperda*. Sylwan 119:57–60.

Mazur, S. and S. Perlinsky. 1992. Species composition, abundance and distribution of subcortical insects in Poland occurring in the galleries of the pine-shoot beetle. Annals of the Warsaw Agricultural University SGGW-AR, Forestry and Wood Technology 43: 59–69.

McGauley, B.H. and C.S. Kirby. 1991. Common pests of trees in Ontario. Ontario Ministry of Natural Resources, Toronto, Ontario.

McIntosh, R.L. and J.A. McLean. 1°92. A life stage development index for *Trypodendron lineatum* (Oliv.) in a spruce boom on the Alberni Canal, Vancouver Island. Journal of the Entomological Society of British Columbia 89:43–47.

McKinney, C. 1992. Mediating the dispute over southern pine beetle management on U.S. Forest Service lands in Texas. Page 56 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference, Denver, Colorado, March 25–28, 1991. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

***McLean, J.A.** 1991. Boring beetles put bite on lumber values. Summary of a paper presented to the Forest Health Technical Session at the Western Forestry and Conservation Meeting, Victoria, B.C. December 4, 1991.

McLean, J. A., D.K. W. Lam, and B.J. Sauder. 1992. Transportation of ambrosia beetles in the industrial milieu of coastal British Columbia. Page 165 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference, Denver, Colorado, March 25–28, 1991. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

McLean, J. L. and S.M. Salom. 1989. Relative abundance of ambrosia beetles in an old-growth western hemlock/Pacific silver fir forest and adjacent harvesting areas. Western Journal of Applied Forestry 4:132–136.

Medler, J. T. 1980. Insects of Nigeria—Check list and bibliography. Memoirs of the American Entomological Institute 30:289–294.

Mendel, Z., O. Boneh, and J. Riov. 1992. Some foundations for the application of aggregation pheromone to control pine bark beetles in

Israel. Journal of Applied Entomology 114: 217–227.

Mendel, Z., O. Boneh, Y. Shenhar, and J. Riov. 1991. Diurnal flight patterns of *Orthotomicus erosus* and *Pityogenes calcaratus* in Israel. Phytoparasitica 19:23–31.

Mendel, Z., H. Podoler, and H. Livne. 1990. Interactions between *Aulonium ruficorne* (Coleoptera: Colydiidae) and other natural enemies of bark beetles (Coleoptera: Scolytidae). Entomophaga 35:99–105.

Mendoza Correa, M.G. and G. Zúñiga Bermúdez. 1991. Determinación del sexo en *Dendroctonus mexicanus* Hopkins (Coleoptera. Scolytidae) a través del análisis de caracteres morfológicos abdominales y cefálicos. [Determination of sex in *Dendroctonus mexicanus* Hopkins (Coleoptera. Scolytidae), a study of a nalysis of abdominal and cephalic morphological characters]. Acta Zoologica Mexicana. Nueva Serie 46:13–21.

Menon, K.D. 1957. Identification of some common defects of building timbers. Malayan Forester 20:89–90.

Merker, E. 1949. The biology of the *Ips typographus* outbreak (in Baden). (In German). Archiv der Wissenschaftlichen Gesellschaft für Land- und Forstwirtschaft No. 1(1–12).

Merkl, O. and C.K. Tusnadi. 1992. First introduction of *Xyleborus affinis* (Coleoptera: Scolytidae), a pest of *Dracaena fragrans* "Massangeana", to Hungary. Folia Entomologica Hungarica 52:67–72.

Meshram, P.B., M. Husen, and K.C. Joshi. 1993. A new report of ambrosia beetle, *Xylosandrus compactus* Eichhoff. (Coleoptera: Scolytidae) as a pest of African mahogany, *Khaya* sp. Indian Forester 119:75–77.

Meyer, P. 1992. The Snowbells of Korea. Arnoldia 52(1):2–8.

Michalski, J., S. Kaczmarek, and E. Ratajczak. 1992a. Roztocze (Acari. Mesostigmata) wystepujace w zerowiskach kornikow (Coleoptera. Scolytidae) Gorczanskiego Parku Narodowego. [Mites (Acari. Mesostigmata) in the bark-beetle galleries (Coleoptera. Scolytidae) of the Gorczanski National Park]. Polskie Pismo Entomologiczne 61:137–142.

———. 1992b. Z badan nad roztoczami (Acari. Mesostigmata) wystepujacymi w zerowiskach kornikow (Coleoptera. Scolytidae). [On the mites (Acari. Mesostigmata) in the bark-beetle galleries (Coleoptera. Scolytidae)]. Polskie Pismo Entomologiczne 61:143–151.

Michalski, J. and E. Ratajczak. 1994. Korniki (Coleoptera: Scolytidae) wraz z fauna towarzyszaca w Roztoczanskim Parku Narodowym. [Bark beetles (Coleoptera: Scolytidae) and the associated fauna of the Roztoczanski National Park]. Fragmenta Faunistica 37:291–313.

Mihkelson, S. 1986. Massive outbreak of *Bupalpus piniarius* in Estonia. Metsanduslikud Uurimused. Estonian SSR 21:64–72.

Milender, G. 1990. On the genus *Epuraea* Er. (Coleoptera. Nitidulidae) in Estonia. (In Russian). Eesti Teaduste Akadeemia Toimetised. Bioloogia 39:183–195.

Miller, D. 1971. Common insects in New Zealand. A.H. & A.W. Reed: Wellington.

Miller, D.R. and J.H. Borden. 1990a. Beta-phellandrene: kairomone for pine engraver. *Ips pini* (Say) (Coleoptera: Scolytidae). Journal of Chemical Ecology 16:2519–2531.

———. 1990b. The use of monoterpenes as kairomones by *Ips latidens* (LeConte) (Coleoptera: Scolytidae). The Canadian Entomologist 122:301–307.

———. 1992. (S)-(+)-ipsdienol: Interspecific inhibition of *Ips latidens* (LeConte) by *Ips pini* (Say) (Coleoptera: Scolytidae). Journal of Chemical Ecology 18:1577–1582.

Miller, D.R., D.R. Devlin, and J.H. Borden. 1994. The use of antiaggregation semiochemicals in controlling pine engravers in stands of lodgepole pine. Pages 38–43 *In* Patrick J. Shea (tech. coord.). Proceedings of the Symposium on Management of Western Bark Beetles with Pheromones: Research and Development. Kailua-Kona. Hawaii. June 22–25. 1992. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-150.

Miller, D.R., G. Gries, and J.H. Borden. 1990. E-myrcenol: A new pheromone for the pine engraver. *Ips pini* (Say) (Coleoptera: Scolytidae). The Canadian Entomologist 122: 401–406.

Miller, D.R. and J.P. Lafontaine. 1991. cis-Verbenol: an aggregation pheromone for the mountain pine beetle. *Dendroctonus ponderosae* Hopkins (Coleoptera: Scolytidae). Journal of the Entomological Society of British Columbia 88:34–38.

Miller, D.R., J.H. Borden, G.G.S. King, and K.N. Slessor. 1991. Ipsenol: an aggregation pheromone for *Ips latidens* (LeConte) (Coleoptera: Scolytidae). Journal of Chemical Ecology 17:1517–1527.

Miller, M.C. and B.R. Parresol. 1992. Winter increase of *Dendroctonus frontalis* Zimmermann (Col., Scolytidae): a precursor of outbreaks. Journal of Applied Entomology 114: 520–529.

Miller, P.R. 1984. Ozone effects in the San Bernardino National Forest. Pages 161–197 *In*

D.D. Davis, A.A. Millen, and L. Dochinger (eds.). Air pollution and the productivity of the forest. Izaak Walton League of America: Arlington, VA.

Mills, N.J. 1991. Searching strategies and attack rates of parasitoids of the ash bark beetle (*Leperisinus varius*) and its relevance to biological control. Ecological Entomology 16: 461–470.

Mills, N.J., K. Krüger, and J. Schlup. 1991. Short-range host location mechanisms of bark beetle parasitoids. Journal of Applied Entomology 111:33–43.

Mitchell, J.H., D.L. Kulhavy, R.N. Conner, and C.M. Bryant. 1991. Susceptibility of red-cockaded woodpecker colony areas to southern pine beetle infestations in east Texas. Southern Journal of Applied Forestry 15: 158–162.

Mitchell, R.G. and H.K. Preisler. 1991. Analysis of spatial patterns of lodgepole pine attacked by outbreak populations of the mountain pine beetle. Forest Science 37: 1390–1408.

Mittempergher, L., A. Fagnani, and F. Ferrini. 1993. L'olmo ciliato (*Ulmus laevis* Pallas), un olmo europeo interessante e poco conosciuto. [European white elm (*Ulmus laevis* Pallas): an interesting and little-known species]. Monti e Boschi 44(4):13–17.

Moeck, H.A. and C.S. Simmons. 1991. Primary attraction of mountain pine beetle, *Dendroctonus ponderosae* Hopk. (Coleoptera: Scolytidae), to bolts of lodgepole pine. The Canadian Entomologist 123:299–304.

Mohring, K. 1983. Root, timber, and crown damage and loss of vitality in older Norway spruce in a ranger district in the northwest German highlands. (In German). Forstarchiv 54:8–13.

Montagnon, C., T. Leroy, C. Cilas, and A.B. Eskes. 1993. Differences among clones of *Coffea canephora* in resistance to the scolytid coffee-twig borer. International Journal of Pest Management 39:204–209.

Moody, B.H. and Amirault, P.A. 1992. Impacts of major pests on forest growth and yield in the prairie provinces and the Northwest Territories: a literature review. Forestry Canada, Canadian Forestry Service, Northwest Region, Northern Forestry Centre (Edmonton, Alta.). Information Report NOR-X-324.

Moor, H. 1987. Untersuchungen über den Verlauf der Massenvermehrung des achtzähnigen Fichtenborkenkäfers (*Ips typographus* (L.) 1983–1985 im Kanton Aargau und Erhebungen über den Erfolg der getroffenen Abwehrmassnahmen. (In German). Dissertation. Albert-Ludwigs-Universität zu Freiburg i. Br.

Moore, D., Y.J. Abraham, and N.J. Mills. 1990. Effects of competition in the coffee berry borer, *Hypothenemus hampei* (Ferrari) (Col., Scolytidae). Journal of Applied Entomology 109:64–70.

Moraal, L.G. 1992. Aantastingen door insekten en mijten in 1991: in bossen, natuurgebieden en wegsbeplantingen. [Infestations by insects and mites in 1991: in forests, nature preserves and roadside plantings]. Nederlands Bosbouwtijdschrift 64:86–95.

Mori, K. and K. Fukamatsu. 1992. A synthesis of (1R,5S)-(+)-frontalin from (S)-(−)-2-hydroxyparaconic acid. Liebegs Annalen der Chemie 11:1191–1193.

Mori, K. and H. Takikawa. 1991. A new synthesis of the enantiomers of the ipsdienol, the pheromone of the ips bark beetle. Tetrahedron 47:2163–2168.

Morris, M.G. 1993. A check list of the weevils of Ireland (Coleoptera: Curculionoidea). Entomologist's Gazette 44:289–296.

Mote, U.N. 1991. New insect pests in India. Tropical Pest Management 37:100.

Mote, U.N. and A.B. Tambe. 1990. Insecticidal control of shot-hole borer, *Xyleborus fornicatus* Eichhoff on pomegranate. Plant Protection Bulletin (Faridabad) 42:9–12.

——. 1992. Observations on extent of damage caused by shot-hole borer on pomegranate and castor. Journal of the Maharashtra Agricultural University 16:439–440.

Mouli, B.C. and P.R. Kumar. 1988. Fungi occurring on tea and *Grevillea robusta* in tea plantations of southern India. Indian Phytopathology 41:503.

Muniappan, R. 1993. Pest and diseases of *Erythrina*: a review. Journal of Coffee Research 23:1–13.

Muona, J. 1989. Four species of beetles new to Finland. Notulae Entomologicae 69:195–197.

Muona, J. and I. Rutanen. 1993. The short-term impact of fire on the beetle fauna in boreal coniferous forest. Annales Zoologici Fennici 31:109–121.

Muraleedharan, N., B. Radhakrishnan, and R. Selvasundaram. 1992. Shot hole borer of tea—evaluation of insecticides. Planters' Chronicle 1992, February:79.

Murphy, S.T. and D. Moore. 1990. Biological control of the coffee berry borer, *Hypothenemus hampei* (Ferrari) (Coleoptera: Scolytidae): previous programmes and possibilities for the future. Biocontrol News and Information 11:107–117.

Murphy, S.T. and D.K. Rangi. 1991. The use of the African wasp *Prorops nasuta* for the control of the coffee berry borer *Hypothenemus hampei* in Mexico and Ecuador: The introduction programme. Insect Science and its Application 12:27–34.

N

Nakashima, T., T. Otomo, Y. Owada, and T. Iizuka. 1992. SEM observations on growing conditions of the fungi in the galleries of several ambrosia beetles (Coleoptera: Scolytidae and Platypodidae). Journal of the Faculty of Agriculture of Hokkaido University 65:239– 273.

Nakayama, M., K. Furuta, I. Takahashi, Y. Sato, and K. Iguti. 1991. Death of Ezo-spruce around log depots after partial cuttings and the dynamics of adult spruce beetles. (In Japanese). Bulletin of the Tokyo University Forests 84:39–52.

Natali, V., B. Paparatti, and F. Canganella. 1994. Microorganisms carried by *Xyleborus dispar* (F.) (Coleoptera: Scolytidae) females, collected on european haxel trees in the area surrounding the Jake of Vico (Viterbo, Central Italy). Redia 77:285–295.

Naumann, I. 1993. CSIRO Handbook of Australian insect names. Common and scientific names for insects and allied organisms of economic and environmental importance. CSIRO: East Melbourne, Victoria, Australia.

Naumann, K., L.J. Rankin, and M.B. Isman. 1994. Systemic action of neem seed extract on mountain pine beetle (Coleoptera: Scolytidae) in lodgepole pine. Journal of Economic Entomology 87:1580–1585.

Nebeker, T.E. 1989. Bark beetles, natural enemies, management selection interactions. Pages 71–80 *In* David L. Kulhavy and Mitchel C. Miller. Potential for biological control of *Dendroctonus* and *Ips* bark beetles. Center for Applied Studies, School of Forestry, Stephen F. Austin State University, Nacogdoches, Texas.

Nebeker, T.E., J.D. Hodges, and C.A. Blanche. 1993. Host response to bark beetle and pathogen colonization. Pages 157–173 *In* T.D. Schowalter and G.M. Filip (eds.). Beetle-pathogen interactions in conifer forests. Academic Press: London.

Nebeker, T.E. and R.F. Schmitz. 1992. Host reactions to microorganisms and "hammering": mountain pine beetle and southern pine beetle experiences. Page 155 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference, Denver, Colorado, March 25–28, 1991. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

Nebeker, T.E., J.D. Hodges, C.A. Blanche, C.R. Honea, and R.A. Tisdale. 1992. Variation in the constitutive defence system of loblolly pine in relation to bark beetle attack. Forest Science 38:457–466.

Nef, L. 1987. *Trypodendron lineatum*: biology and damage. (In French). Bulletin de la Société Royale Forestière de Belgique 94: 97–106.

———. 1990a. Variabilité inter- et intra-arbres des attaques d'*Ips typographus* L. (Col., Scolytidae) sur *Picea abies* Karst. [Within-trees and between-trees variability of the attacks of *Ips typographus* L. (Col., Scolytidae) on Norway spruce]. Journal of Applied Entomology 110:516–523.

———. 1990b. Morphological variability of *Ips typographus* in relation to various ecological characteristics. Belgian Journal of Zoology 120(suppl. 1):49.

Nemec, V., V. Zumr, and P. Stary. 1993. Studies on the nutritional state and the response to aggregation pheromones in the bark beetle. *Ips typographus* (L.) (Col., Scolytidae). Journal of Applied Entomology 116:358–363.

Nettleton, W.A. 1992. Southern pine beetle management. Page 122 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference, Denver, Colorado, March 25–28, 1991. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

Nevill, R.J. and S.A. Alexander. 1992a. Distribution of *Hylobius pales* and *Pissodes nemorensis* (Coleoptera: Curculionidae) within Christmas tree plantations with procerum root disease. Environmental Entomology 21: 1077–1085.

———. 1992b. Root-and stem-colonizing insects recovered from eastern white pines with procerum root disease. Canadian Journal of Forest Research 22:1712–1716.

Nicolai, V., C. Heidger, C. Dippel, and T. Strohmenger. 1992. Bark beetles and their predators in bark beetle pheromone traps. Zoologische Jahrbücher. Arbeiten für Systematik, Ökologie und Geographie der Tiere 119:315–338.

Niemeyer, H. 1989. Erst Erfahrungen mit ein pheromonfallengestützten Borkenkäferüberwachungssystem in Niedersachsen und

Schleswig-Holstein. [First results with pheromonme-trap system for monitoring bark beetles in Lower Saxony and Schleswig- Holstein]. Forst- und Holzwirt 44:114–115.

———. 1992. Monitoring *Ips typographus* and *Pityogenes chalcographus* (Col.. Scolytidae) in Lower Saxony and Schleswig-Holstein. Journal of Applied Entomology 114:98–102.

Niemeyer, H., G. Watzek, and O. Vaupel. 1982. Performance of various types of bark beetle traps for control of *Ips typographus*. (In German). Forst- und Holzwirt 37:444–447.

Nierhaus-Wunderwald, D. 1992. Ridenbruter an Nadelholzern. Biologie der Buchdruckerarten. [Bark brood on conifers. Biology of the engraver beetles]. Wald- und Holzwirt 1992(6):8–14.

Nihoul, P. and L. Nef. 1992. Charactéristiques anatomiques de l'écorce de l'épicea commun *Picea abies* Karst. et intensité des attaques d'*Ips typographus* L. (Col.. Scolytidae). [Anatomical characteristics of Norway spruce bark *Picea abies* Karst. and the intensity of *Ips typographus* L. attacks (Col., Scolytidae)]. Journal of Applied Entomology 114:26–31.

Nilssen, A.C. 1993. Distribution of phytophagous beetles (Scolytidae, Cerambycidae, Curculionidae) living in the bark and wood of Scots pine (*Pinus sylvestris* L.) in northern Norway. Fauna Norvegica, Series B 40:13–31.

Nishida, G.M. 1992. Hawaiian terrestrial arthropod checklist. Bishop Museum Technical Report No. 1.

Niu, M.D. and N. Lu. 1992. Brief report of the diffusion damage and control of *Tomicus piniperda* L. (In Chinese). Pages 160–164 *In* M.G. Zhao, J.L. Shi, H.Y. Pan and Y.Y. Wang (eds.). [Collection of achievements on the technique cooperation project of P.R. China and F.R. Germany]. Ministry of Forestry, China.

Noguera-Martinez, F.A., and T.H. Atkinson. 1990. Biogeography and biology of bark and ambrosia beetles (Coleoptera: Scolytidae and Platypodidae) of a mesic montane forest in Mexico, with an annotated checklist of species. Annals of the Entomological Society of America 83:453–466.

Nord, J.C., F.L. Hastings, and A.S. Jones. 1990. Field tests of pine oil as a repellent for southern pine bark beetles. United States Department of Agriculture, Forest Service, Southeastern Forest Experiment Station (Athens, GA), Research Note SE-355.

Norhara Bt. H. 1981. A preliminary assessment of the relative susceptibility of rubberwood to beetle infestations. The Malasian Forester 44:482–487.

Norris, D.M. 1993. *Xyleborus* ambrosia beetles: a symbiotic ideal extreme biofacies with evolved polyphagous priviliges at monophagous prices. Symbiosis 14:229–236.

Norris, D.M. and H.M. Chu. 1985. *Xyleborus ferrugineus*. Pages 303–315 *In* P. Singh and R.F. Moore (eds.), Handbook of Insect Rearing. Vol. 1. Elsevier: Amsterdam.

Noshita, T., T. Sugiyama, and K. Yamashita. 1991. Total synthesis of natural (+)-phomopsolide B. Agricultural and Biological Chemistry 55:1207–1209.

Novak, P. 1988. Zhodnotenie poslednej epifytocie dubovych porastov v oblasti Virhorlatu. [Evaluation of diseased oak stands in the Virhorlat area]. Lesnictví (Prague) 34:1093–1102.

Nowak, D.J. and J.R. McBride. 1992. Differences in Monterey pine pest populations in urban and natural forests. Forest Ecology and Management 50:133–144.

O

O'Connor, B.M. 1990. Ecology and host associations of *Histiogaster arborsignis* (Acari: Acaridae) in the Great Lakes region, particularly in the Huron Mountains of northern Michigan. Great Lakes Entomologist 23: 205–209.

O'Conner, J.P., T.G. Winter, and J.A. Good. 1991. A review of the Irish Scolytidae (Insecta: Coleoptera). Irish Naturalists Journal 23:403–408.

Ogasawara, R., H. Nagaoka, and M. Kakihara. 1990. Relationship between pine damage perhaps by pine bark beetle and the mixture of broadleaf tree in pine forest. (In Japanese). Research Bulletin of the Tottori University Forests 19:135–140.

Ohira, S., S. Ishi, K. Shinohara, and H. Nozaki. 1990. C-H insertion method for the chiral tertiary alcohol: formal synthesis of (–)-frontalin. Tetrahedron Letters 31: 1039–1040.

***Ohm, R.** 1993. Vergleichende Untersuchungen zur Optimierung der Bekämpfung des Grossen Buchdruckers (*Ips typographus* L.) im Immissionsgebiet Osterzgebirge. Dopl.-Arb. TU Dresden, Fakultät für Bau-, Wasser- und Forstwesen, Abt. Forstwirtschaft Tharandt.

Ohm, R., J. Lorenz, and A. Scholz. 1994. Beifänge aus Borkenkäfer-Pheromonfallen. Entomologische Nachrichten und Berichte 38: 31–34.

Ohno, S. 1990a. Studies on Scolytidae and Platypodidae (Coleoptera) found on imported logs at Japanese ports II. Keys to the species of tribe Xyleborini (except *Xyleborus*). Research Bulletin of the Plant Protection Service (Japan) 26:23–29.

———. 1990b. Studies on Scolytidae and Platypodidae (Coleoptera) found on imported logs at Japanese ports III—Keys to the species of *Diaporinae* and *Platytarsilinae*-. Research Bulletin of the Plant Protection Service (Japan) 26:31–35.

———. 1990c. The Scolytidae and Platypodidae (Coleoptera) from Borneo found in logs at Nagoya Port I. Research Bulletin of the Plant Protection Service (Japan) 26:83–94.

———. 1990d. The Scolytidae and Platypodidae (Coleoptera) from Borneo found in logs at Nagoya Port II. Research Bulletin of the Plant Protection Service (Japan) 26:95–103.

* ———. 1991. Studies on Scolytidae and Platypodidae (Coleoptera) found on imported logs at Japanese ports. IV. A key to the species of genus *Xyleborus*. Research Bulletin of the Plant Protection Service (Japan) 27:13–40.

***Ojeda G.** 1985. *Hylastes ater* (Paykull). Programa de control de plagas y enfermedades forestales. Corporación Nacional Forestal (Conaf). Santiago. Chile.

O'Keefe, L.E. 1968. Dutch elm disease: chemical protection against elm bark beetles. Univerisity of Idaho. Agricultural Experiment Station (Moscow. ID). 1 sheet.

Orbay, L., J.A. McLean, B.J. Sauder, and P.L. Cottell. 1994. Economic losses resulting from ambrosia beetle infestation of sawlogs in coastal British Columbia. Canada. Canadian Journal of Forest Research 24:1266–1276.

Osipenko, N.I. 1983. Analysis of the colonization of Scots pine by bark beetles in the western Poles'e of the Ukkraine. (In Russian). Lesnoi Zhurnal 3:8–10.

———. 1985. Analysis of *Ips sexdentatus* populations in the western Ukrainian Poles'e. (In Russian). Lesovodstvo i Agrolesomelioratsiya 70:68–70.

Osumi, S. and N. Mizuno. 1992. Studies on some scolytid ambrosia beetles attacking apple plants. I. Species and biology of scolytid ambrosia beetles. (In Japanese). Bulletin of the Akita Fruit-tree Experiment Station 22:23–35.

Otrosina, W.J. and G.T. Ferrell. 1992. Resistance of white fir provenances to the fir engraver (*Scolytus ventralis*)—*Trichosporum symbioticum* complex. Page 153 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver. Colorado. March 25–28. 1991. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-294.

Otte, J. 1989. Ökologische Untersuchungen zur Bedeutung von Windwurfflächen für die Insektenfauna (Teii I). [Ecological studies on the significance of blowdown surfaces for insect fauna]. Waldhygiene 17:193–247.

Ounap, H. 1992. Laboratory studies of the food selection of some predators of bark beetles (Coleoptera: Scolytidae). Eesti Teaduste Akadeemia Toimetised. Bioloogia 41: 131–140.

Owen, D.R. and W.W. Wilcox. 1982. The association between ring shake. wetwood. and fir engraver beetle attack in white fir. Wood and Fiber 14:267–280.

Owen, J.A. 1993. Use of a flight-interception trap in studying the beetle fauna of a Surrey wood over a three year period. The Entomologist 112:141–160.

———. 1994a. *Pityophthorus lichtensteini* (Ratz.) (Col.. Scolytidae) in S. Aberdeenshire and Elgin. with notes on its ecology and reported occurrences in Britain. Entomologist's Monthly Magazine 130:139–140.

———. 1994b. Some uncommon British beetles. Page 172 *In* 1993 Annual Exhibition. Imperial College. London SW7-. 30 October 1993. British Journal of Entomology and Natural History 7:145–180.

Ozaki, K., K. Maeto, and S. Choldumrongkul. 1991. Effectiveness of two different types of pheromone traps used against *Ips typographus japonicus* Niijima (Coleoptera: Scolytidae) in Japan. Applied Entomology and Zoology 26: 149–150.

Ozkazanc, O. 1985. Two new important records for forest insect fauna of Turkey. Turkiye Bitki Koruma Dergisi 9:163–164.

Ozols, G.E., M.Y. Bichevskis, and E.A. Menniks. 1989a. Application of the pheromone of the bark beetle *Ips typographus* L. (Col., Scolytidae) in the protection of spruce. (In Russian). Pages 29–52 *In* Z.P. Spalvin'sh (ed). Zashchita sosny i eli v Latviiskoi SSR. Riga. USSR.

———. 1989b. Pyrethroids against the large pine weevil *Hylobius abietis* L. (Col., Curculionidae) and bark beetles (Col., Scolytidae). (In Russian). Pages 64–79 *In* Z.P. Spalvin'sh (ed). Zashchita sosny i eli v Latviiskoi SSR. Riga. USSR.

P

Page, M. 1992. Cuticular hydrocarbon research. Page 16 *In* Jane L. Hayes and J.L. Robertson (eds.). Proceedings of a workshop on bark beetle genetics: current status of research. May 17–18. 1992. Berkeley. California. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-138.

Page, M., L.J. Nelson, M.I. Haverty, and G.J. Blomquist. 1990a. Cuticular hydrocarbons as chemotaxonomic characters for bark beetles: *Dendroctonus ponderosae*. *D. jeffreyi*. *D. brevicomis*. and *D. frontalis* (Coleoptera: Scolytidae). Annals of the Entomological Society of America 83:892–901.

———. 1990b. Cuticular hydrocarbons of eight species of North American cone beetles. *Conophthorus* Hopkins. Journal of Chemical Ecology 16:1173–1198.

Paine, T.D. 1994. Bark beetle pheromone research in southern California. Pages 44–45 *In* Patrick J. Shea (tech. coord.). Proceedings of the Symposium on Management of Western Bark Beetles with Pheromones: Research and Development. Kailua-Kona. Hawaii. June 22–25. 1992. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-150.

Paine, T.D. and F.A. Baker. 1993. Abiotic and biotic predisposition. Pages 61–79 *In* T.D. Schowalter and G.M. Filip (eds.). Beetle-pathogen interactions in conifer forests. Academic Press: London.

Paine, T.D. and C.C. Hanlon. 1991. Response of *Dendroctonus brevicomis* and *Ips paraconfusus* (Coleoptera: Scolytidae) to combinations of synthetic pheromone attractants and inhibitors verbenone and ipsdienol. Journal of Chemical Ecology 17:2163–2176.

Paine, T.D. and C.C. Hanlon. 1994. Influence of oleoresin constituents from *Pinus ponderosa* and *Pinus jeffreyi* on growth of mycangial fungi from *Dendroctonus ponderosae* and *Dendroctonus jeffreyi*. Journal of Chemical Ecology 20:2551–2563.

Paine, T.D., F.M. Stephen, and R.G. Cates. 1993. Within-and among-tree variation of the induced response of loblolly pine to a fungus associated with *Dendroctonus frontalis* Zimmermann (Coleoptera: Scolytidae) and sterile wounding. The Canadian Entomologist 125: 65–71.

Pajares Alonso, J.A. and G.N. Lanier. 1989. Pyrethroid insecticides for control of European elm bark beetle (Coleoptera: Scolytidae). Journal of Economic Entomology 82: 873–878.

———. 1990. Biosystematics of the turpentine beetles *Dendroctonus terebrans* and *D. valens* (Coleoptera: Scolytidae). Annals of the Entomological Society of America 83:171–188.

Panina, N.B. 1976. Development of *Ips typographus* in the Moscow region. (In Russian). Lesnoe Khozyaistvo 12:73–76.

Papp, C.S. 1984. Introduction to North American beetles. (Scolytidae. pp. 284–298). Entomography Publications: Sacramento. CA.

Parbery, D.G. and K.A. Rubma. 1991. *Michenera artocreas* in elm wood infested with *Scolytus multistriatus* in Australia. Mycological Research 95:761–762.

Parker, D.L. 1992. Integrated pest management guide: Arizona five-spined ips. *Ips lecontei* Swaine. and pine engraver. *Ips pini* (Say). in ponderosa pine. United States Department of Agriculture. Forest Service. Southwestern Region (Albuquerque. NM). Report R-391-8.

Parker, D.L. and L.E. Stipe. 1993. A sequence of destruction: mountain pine beetle and wildfire: Yellowstone National Park. United States Department of Agriculture. Forest Service. Southwestern Region (Albuquerque. NM).

Parkin, C.S., L.O. Brun, and D.M. Suckling. 1992. Spray deposition in relation to endosulphan resistance in coffee berry borer (*Hypothenemus hampei*) (Coleoptera: Scolytidae) in New Caledonia. Crop Protection 11:213–220.

Parmeter, J.R. Jr., G.W. Slaughter, M. Chen, and D.L. Wood. 1992. Rate and depth of sapwood occlusion following inoculation of pines with bluestain fungi. Forest Science 38:34–44.

Parsons, G.L., G. Cassis, A.R. Moldenke, J.D. Lattin, N.H. Anderson, J.C. Miller, P. Hammond, and T.D. Schowalter. 1991. Invertebrates of the H.J. Andrews Experimental Forest. western Cascade Range. Oregon. V: An annotated list of insects and other arthropods. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-290. 168 pp.

Pasek, J.E., W.C. Schaupp, Jr. 1992. Status and trends of mountain pine beetle populations in the Bear Mountain and White House Gulch areas on the Harney Ranger District. Black Hills National Forest. South Dakota. United States Department of Agriculture. Forest Service. Rocky Mountain Region (Lakewood. CO). Biological Evaluation R2-92-04.

Patterson, S. 1992. Douglas-fir beetle: dealing with an epidemic. United States Department of Agriculture. Forest Service. Intermountain Research Station (Ogden. UT). General Technical Report INT-291:73–76.

Pavlin, R., J. Titovsek, and M. Kotar. 1994. Testiranje piretroidnih insekticidov za obvladovanje osmerozobega smrekovega lubadarja (*Ips typographus* L.). [Testing pyrethroid insecticides for controlling Norway spruce bark beetles (*Ips typographus* L.)]. Gozdarski Vestnik 52:145–152.

Payne, T.L. 1989. Olfactory basis for insect enemies of allied species. Pages 55–69 *In* David L. Kulhavy and Mitchel C. Miller. Potential for biological control of *Dendroctonus* and *Ips* bark beetles. Center for Applied Studies, School of forestry. Stephen F. Austin State University. Nacogdoches. Texas.

Payne, T.L., M.T. Smith, M.C. Birch, and A. Ascoli. 1991. Interspecific olfactory communication in the southern pine bark beetle guild. Pages 352–370 *In* Y.N. Baranchikov, W.J. Mattson, F.P. Hain and T.L. Payne (eds.). Forest insect guilds: Patterns of interaction with host trees. United States Department of Agriculture. Forest Service. Northeastern Forest Experiment Station (Radnor, PA). General Technical Report NE-153.

Payne, T.L., R.F. Billings, C.W. Berisford, S.M. Salom, D.M. Grosman, M.J. Dalusky, and W.W. Upton. 1992. Disruption of *Dendroctonus frontalis* (Col., Scolytidae) infestations with an inhibitor pheromone. Journal of Applied Entomology 114:341–347.

Paynter, Q.E., O. Anderbrandt, and F. Schlyter. 1990. Behavior of male and female spruce bark beetles, *Ips typographus*, on the bark of host trees during mass attack. Journal of Insect Behavior 3:529–543.

Pechacek, P. and A. Kristin. 1993. Nahrung der Spechte im Nationalpark Berchtesgaden. Die Vogelwelt 114:165–177.

Peck, S.B. and J. Kukalová-Peck. 1990. Origin and biogeography of the beetles (Coleoptera) of the Galápagos Archipelago, Ecuador. Canadian Journal of Zoology 68:1617–1638.

Pena, A., D.R. Kelly, C. Szauman-Szumski, and M. Campos. 1992. Optimization of bioassay conditions for the olive bark beetle *Phloeotribus scarabaeoides*. Entomologia Experimentalis et Applicata 63:81–86.

Pentiuc, V. 1987. Contribution concerning the use of spruce bark tubes for the detection and control of the insect *Ips typographus* using synthetic pheromones in coniferous stands. (In Romanian). Revista Padurilor 102:85–87.

Perny, B. 1994. Buchdruckerpheromone und Fallentypen im Vergleich. [Comparison of bark beetle pheromones and trap types]. Forstschutz Aktuell 14:6–8.

Perry, T.J. 1991. A synopsis of the taxonomic revisions in the genus *Ceratocystis* including a review of blue-staining species associated with *Dendroctonus* bark beetles. United States Department of Agriculture. Forest Service. Southern Forest Experiment Station (New Orleans, LA). General Technical Report SO-86.

Perusquia Ortiz, J. 1982b. Insects associated with the *Dendroctonus* spp. pine bark beetles. (In Spanish). Instituto Nacional de Investigaciones Forestales. Boletin Tecnico 83.

Peterson, W.C. and D.E. Hibbs. 1989. Adjusting stand density management guides for sites with low stocking potential. Western Journal of Applied Forestry 4:62–65.

Pfeffer, A. 1992. Nomenclatural note on *Crypturgus mediterraneus* (Coleoptera, Scolytidae). Acta Entomologica Bohemoslovaca 89: 69–70.

———. 1994a. 91. Familie: Scolytidae. Pages 153–180 *In* G.H. Lohse and W.H. Lucht. Die Käfer Mitteleuropas. 3. Supplementband mit Katalogteil. Goecke and Evers: Krefeld.

———. 1994b. 92. Familie: Platypodidae. Pages 180–181 *In* G.H. Lohse and W.H. Lucht. Die Käfer Mitteleuropas. 3. Supplementband mit Katalogteil. Goecke and Evers: Krefeld.

———. 1994c(1995). Zentral- und Westpaläarktische Borken- und Kernkäfer (Coleoptera, Scolytidae, Platypodidae). Entomologica Basiliensia 17:5–310.

Pfeffer, A. and M. Knizek. 1989. Problematika kurovcu introdukovanych do Evropy. [Problems of bark beetles introduced into Europe]. Lesnicka Prace 68:311–312.

Pfeiffer, D.G., T.J. Boucher, M.W. Lachance, and J.C. Killian. 1990. Entomological research in Virginia (USA) vineyards. Pages 45–61 *In* N.J. Bostanian, L.T. Wilson and T.J. Dennehy (eds.). Monitoring and integrated management of arthropod pests of small fruit crops. Intercept: Andover, Hampshire.

Pfeil, R. 1991. Gesundheitliche Bewertung der Wirkstoffe zur Borkenkäferbekämpfung. [Toxicological evaluation of pesticides for the control of bark beetles]. Pages 142–152 *In* Alfred Wulf and R. Kehr (eds.). Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integreiten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Phillips, T.W. 1990a. Responses of *Hylastes salebrosus* to turpentine, ethanol, and pheromones of *Dendroctonus* (Coleoptera: Scolytidae). Florida Entomologist 73:286–292.

———. 1990b. Attraction of *Hylobius pales* (Herbst) (Coleoptera: Curculionidae) to pheromones of bark beetles (Coleoptera: Scolytidae). The Canadian Entomologist 122: 423–427.

Phillips, T.W., J.L. Nation, R.C. Wilkinson, J.L. Foltz, H.D. Pierce Jr., and A.C. Oehlschlager. 1990. Response specificity of *Dendroctonus terebrans* (Coleoptera: Scolytidae) to enantiomers of its sex pheromones. Annals of the Entomological Society of America 83:251–257.

Pigeon, O., M. De Proft, M. Galoux, A. Bernes, B. De Ryckel and J-C Grégoire. 1993. Study on the wash-off resistance of pyrethroids sprayed on picea (*Picea abies* L.) against *Ips typographus* (L.) (Col., Scolytidae). (In French). Mededelingen Faculteit Landbouwkundige en Toegepaste Biologische Wetenschappen Universiteit Gent 58(2A):225–237.

***Piletskis, S.A. and B.Y. Yakaitis.** 1989. Seven species of beetles new to the Lithuanian SSR found in 1976–1987. (In Russian). Pages 12–17 *In* V. Ionaitis (ed). Novye i redkie dlya Litovskoi SSR vidy nasekomykh. Soobshcheniya i opisaniya 1989 goda. Institut Zoologii i Parazitologii Akademii Nauk Litovskoi SSR.

***Pina, I.L. and R.V. Muniz.** 1981. Los escolítidos como plagas forestales. Laboratorios Nacionales de Fomento Industial. Monografía 111.

Pinon, J. 1990. American oak wilt risk evaluation and prevention. (In French). Revue Forestière Française (Nancy) 42:186–190.

Piou, D. 1994. De nouveaux deperissements de pin dans le Nord de la France. Le cas particulier de la forêt d'Orleans. [Forest decline of pine in the north of France: the example of the Orleans forest]. Revue Forestière Française (Nancy) 46:538–546.

Podgornyi, Y.K., V.P. Isikov, E.A. Vasil'eva, and A.P. Evtushenko. 1988. Causes of dieback of *Pinus pallasiana* in Askania-Nova park. (In Russian). Byulleten' Gosudarstvennogo Nikitskogo Botanicheskogo Sada 65: 61–64.

Podlaski, R. and A. Borkowski. 1993. A statistical method for evaluating the abundance and colonization density of the pine beetle (*Tomicus piniperda* L.) on trap trees in Poland. Anzeiger für Schädlingskunde, Pflanzenschutz, Umweltschutz 66:107–108.

Podoler, H., Z. Mendel, and H. Livne. 1990. Studies on the biology of a bark beetle predator, *Aulonium ruficorne* (Coleoptera: Colydiidae). Environmental Entomology 19: 1010–1016.

Poland, T.M. and J.H. Borden. 1994a. Attack dynamics of *Ips pini* (Say) and *Pityogenes knechteli* (Swaine) (Col., Scolytidae) in windthrown lodgepole pine trees. Journal of Applied Entomology 117:434–443.

———. 1994b. Semiochemical-based communication in interspecific interactions between *Ips pini* (Say) and *Pityogenes knechteli* (Swaine) (Coleoptera: Scolytidae) in lodgepole pine. The Canadian Entomologist 126:269–276.

Polymenopoulos, A.D. and G. Long. 1990. Estimation and evaluation methods for population growth models with spatial diffusion dynamics of mountain pine beetle. Ecological Modelling 51:97–122.

Popp, M.P. and J.D. Johnson. 1990. The role of ethylene in the host response of slash pine to beetle-vectored fungi. British Society for Plant Growth Regulation. Monograph 20: 185–193.

Popp, M.P., J.D. Johnson, and T.L. Massey. 1991. Stimulation of resin flow in slash and loblolly pine by bark beetle vectored fungi. Canadian Journal of Forest Research 21: 1124–1126.

Powers, Jr., H.R., R.P. Belanger, W.D. Pepper, and F.L. Hastings. 1992a. An observation of differential mortality caused by the southern pine beetle within 11-year old rust-resistant loblolly pine from different geographical seed sources. Page 170 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference, Denver, Colorado, March 25–28, 1991. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

———. 1992b. Loblolly pine seed sources differ in susceptibility to the southern pine beetle in South Carolina. Southern Journal of Applied Forestry 16:169–174.

Prazak, R. 1991. Studies on indirect infection of *Trypodendron lineatum* Oliv. with *Beauveria bassiana* (Bals.) Vuill. Journal of Applied Entomology 111:431–441.

Preisler, H.K. 1992. Spatial analysis in bark beetle research. Page 5 *In* Jane L. Hayes and J.L. Robertson (eds.). Proceedings of a workshop on bark beetle genetics: current status of research. May 17–18, 1992, Berkeley, California. United States Department of Agriculture, Forest Service, Pacific Southwest Research Station (Albany, CA). General Technical Report PSW-GTR-138.

Preisler, H.K. and R.G. Mitchell. 1993. Colonization patterns of the mountain pine beetle in thinned and unthinned lodgepole pine stands. Forest Science 39:528–545.

Prelc, F. 1993. Varstvo gozdov na kraskem gozdnogospodarskem obmocju. [Forest protection in the Kras forest enterprise region]. Gozdarski Vestnik 51:2–17.

Price, M.F. 1991. An assessment of patterns of use and management of mountain forests in Colorado. USA: implications for future policies. Pages 57–64 *In* Y.P. Badenkov et al. (eds.). Transformation of mountain environments (TOME). Conference proceedings. October 1–6. 1989. Tsahkadzor. Armenian SSR. USSR. Part 2. Mountain Research and Development 11.

Prien, S. 1988. The effect of pests in the complex of causes of "classical" and "modern" air pollution damage. Wissenschaftliche Zeitschrift der Technischen Universitat Dresden 37:253–258.

Prihoda, A. 1987. The importance of *Thysanophora penicillioides* fungus in forestry. Lesnictví (Prague) 33:227–234.

Proft, M. de, J.C. Grégoire, O. Pigeon, and A. Bernes. 1992. Méthode d'évaluation de l'efficacité des insecticides a l'égard des scolytes en foret résineuse. [A method for assessing the efficacy of insecticides against Scolytidae in coniferous forest]. International Symposium on Crop Protection. Mededelingen van de Faculteit Landbouwwetenschappen. Rijksuniversiteit Gent 57(2–3. Part A-B):815–824.

Putland, P.J. 1994. Bark beetle pheromones: A current industry assessment. Page 53 *In* Patrick J. Shea (tech. coord.). Proceedings of the Symposium on Management of Western Bark Beetles with Pheromones: Research and Development. Kailua-Kona. Hawaii. June 22–25. 1992. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-150.

Pye, J.M. 1993a. Regional dynamics of southern pine beetle populations. United States Department of Agriculture. Forest Service. Northeastern Forest Experiment Station (Radnor. PA). General Technical Report NE-175: 111–124.

———. 1993b. A spot-growth model for southern pine beetle. United States Department of Agriculture. Forest Service. Northeastern Forest Experiment Station (Radnor. PA). General Technical Report NE-175:160–171.

Q

Qing He Zhang and H. Niemeyer. 1992. Morphological characteristics for sexing living adults of *Ips cembrae* (Heer) (Col., Scolytidae). Journal of Applied Entomology 114: 403–409.

Queitsch, B.E. and R.L. Develice. 1994. Developing a Kenai Peninsula forest succession model. Bulletin of the Ecological Society of America 75:187.

R

Rabaglia, R.J. and J.F. Cavey. 1994. Note on the distribution of the immigrant bark beetle. *Hylastes opacus*. in North America (Coleoptera: Scolytidae). Entomological News 105: 277–279.

Raffa, K.F. 1991a. Induced defensive reactions in conifer-bark beetle systems. Pages 245–276 *In* D.W. Tallamy and M.J. Raupp (eds.). Phytochemical induction by herbivores. John Wiley & Sons: New York.

———. 1991b. Temporal and spatial disparities among bark beetles. predators. and associates responding to synthetic bark beetle pheromones: *Ips pini* (Coleoptera: Scolytidae) in Wisconsin. Environmental Entomology 20: 1665–1679.

———. 1992. Current status and critical research needs in scolytid genetics. Pages 18–19 *In* Jane L. Hayes and J.L. Robertson (eds.). Proceedings of a workshop on bark beetle genetics: current status of research. May 17–18. 1992. Berkeley. California. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-138.

Raffa, K.F. and D.L. Dahlsten. 1993. Differential responses among natural enemies and prey to bark beetle pheromones. Bulletin of the Ecological Society of America 74 (2 suppl.):402.

Raffa, K.F., K. Klepzig, and E.B. Smalley. 1992. Interactions among root beetles. fungi. and bark beetles in promoting forest declines: Dynamics of infection and mortality in Lake States red pine. Page 154 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver. Colorado. March 25–28. 1991. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-294.

Raffa, K.F., T.W. Philips, and S.M. Salom. 1993. Strategies and mechanisms of host colonization by bark beetles. Pages 103–128 *In* T.D. Schowalter and G.M. Filip (eds.). Beetle-pathogen interactions in conifer forests. Academic Press: London.

Rajput, S.S., V.K. Gupta, and R.C. Lohani. 1990. A study on the influence on pin holes on strength of *Pinus roxburghii*. Journal of the

Timber Development Association of India 36: 37–42.

Rankin, L.J. and J.H. Borden. 1991. Competitive interactions between the mountain pine beetle and the pine engraver in lodgepole pine. Canadian Journal of Forest Research 21: 1029–1036.

Rappaport, N.G., M.I. Harvety, P.J. Shea, and R.E. Sandquist. 1994. Efficacy of esfenvalerate for control of insects harmful to seed production in disease-resistant western white pines. The Canadian Entomologist 126:1–5.

Rappaport, N.G. and D.L. Wood. 1994. *Pityophthorus orarius* Bright (Coleoptera: Scolytidae) in a northern California Douglas-fir seed orchard: Effect of clone, tree vigor, and cone crop on rate of attack. The Canadian Entomologist 126:1111–1118.

Rasmussen, L.A. 1992. Top-kill of Ponderosae pine. Dixie National Forest. Utah. United States Department of Agriculture. Forest Service. Intermountain Research Station (Ogden. UT). Research Note INT-407.

Rauhut, B., G.H. Schmidt, and L. Schmidt. 1993. Das Coleopteren-Spektrum in Borkenkäfer-Pheromonfallen eines heterogenen Waldgebietes im Landkreis Hannover. [The spectrum of Coleoptera in bark beetle pheromone traps set up in a heterogenous forest area near Hannover]. Braunschweiger Naturkundliche Schriften 4:247–278.

Redmond, C.H. and W.A. Nettleton. 1990. An economic analysis of southern pine beetle suppression activity on the Gulf Coastal Plain national forests during 1985 and 1986. Southern Journal of Applied Forestry 14:70–73.

Ree, B. 1994. March is peak activity month for Asian ambrosia beetle. Pecan South 26(12):11.

Reeve, J.A., M.P. Ayers, and P.L. Lorio, Jr. 1994. Population dynamics of bark beetles. Bulletin of the Ecological Society of America 75:189.

Reeve, J.D. and P. Turchin. 1993. A mechanistic approach to understanding and predicting southern pine beetle dynamics. United States Department of Agriculture. Forest Service. Northeastern Forest Experiment Station (Radnor. PA). General Technical Report NE-175:100–110.

Regnander, J. 1976. Sprinkling insect-attacked pulpwood-an important part of the control of bark beetles. Sveriges Skogsvardsforbunds Tidskrift 74:497–504.

Reid, M.L. and B. Roitberg. 1994. Benefits of prolonged male residence with mates and brood in pine engravers (Coleoptera: Scolytidae). Oikos 70:140–148.

Reindl, J. 1991. Erfahrungen und Situation der Borkenkäferbekämpfung in den Sturmwurfgebieten im Jahr 1990 in Bayern. [Present situation and experience concerning bark beetle control in the storm-damaged area of Bavaria in 1990]. Pages 12–17 *In* Alfred Wulf and R. Kehr (eds.). Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integreiten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Remond, F., C. Cilas, M.I. Vega-Rosales, and M.O. González. 1993. Sampling procedure for the evaluation of coffee berry attacks by the coffee berry borer *Hypothenemus hampei* Ferr. (In French). Café. Cacao. Thé 37:35–52.

Rexrode, C.O. and H.C. Smith. 1990. Occurrence of gum spots in black cherry after partial harvest cutting. United States Department of Agriculture. Forest Service. Northeastern Forest Experiment Station (Radnor. PA). Research Paper NE-634.

Reynolds, K.M. 1992. Relations between activity of *Dendroctonus rufipennis* Kirby on Lutz spruce and blue stain associated with *Leptographium abietinum* (Peck) Wingfield. Forest Ecology and Management 47:71–86.

Reynolds, K.M. and J.S. Hard. 1991. Risk and hazard of spruce beetle attack in unmanaged stands on the Kenai Peninsula. Alaska. under epidemic conditions. Forest Ecology and Management 43:137–151.

Reynolds, K.M. and E.H. Holstein. 1994a. Classification of spruce beetle hazard in Lutz spruce (*Picea x lutzii*) stands on the Kenai Peninsula. Alaska. Canadian Journal of Forest Research 24:1015–1021.

———. 1994b. Relative importance of risk factors for spruce beetle outbreaks. Canadian Journal of Forest Research 24:2089–2095.

Rhoades, D.F. 1990. Analysis of monoterpenes emitted and absorbed by undamaged boles of lodgepole pine. Phytochemistry 29:1463–1465.

Riba, J.M. and M. Blas. 1994. Estudios sobre la proporcion de sexos de *Trypodendron lineatum* (Olivier. 1795) (Coleoptera: Scolytidae) en el Valle de Aran (Pirineos Orientales). (Studies on the sex-ratio of *Trypodendron lineatum* (Olivier. 1795) (Coleoptera: Scolytidae) in Arán Valley (East Pyrenees). Elytron 8:203–215.

Richards, N.T. 1988. Mycotechnology: *Trichothecin* revisited? Mycologist 2:123–124.

Richerson, J.V. and P.E. Boldt. 1995. Phytophagous insect fauna of *Flourensia cernua* (Asteraceae: Heliantheae) in Trans-Pecos

Texas and Arizona. Environmental Entomology 24:588–594.

Richter, D. 1989. Die Buchdruckerarten (*Ips typographus* (L.) und *Ips amitinus* Eichh.). [The pine engraver species (*Ips typographus* (L.) and *Ips amitinus* Eichh.). Merkblatt-Institut für Forstwissenschaften Eberswalde. Eberswalde-Finow. No. 44.

———. 1991. Borkenkäferbekämpfung in den fünf neuen Bundesländern. [Control of bark beetles in the five new states of the Federal Republic of Germany]. Pages 28–36 *In* Alfred Wulf and R. Kehr (eds.). Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integreiten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Rieder, P. 1990. Die Weisstanne im basellandschaftlichen Tafel- und Faltenjura. [Silver fir in the table and folded jura of the Basel landscape]. Schweizerische Zeitschrift für Forstwesen 141:653–671.

Riedl, H.W. 1973. Aspects of the feeding behavior of *Scolytus multistriatus*, the primary vector of Dutch elm disease, and a critical evaluation of the present chemical control measures. Dissertation Abstract International. B 34:2678.

Risberg, B. 1985b. Inventory of *Ips typographus* damage—a survey of methods and a field study using two-phase sampling. (In Swedish). Sveriges Skogvardsforbunds Tidskrift 2: 33–41.

Ritzengruber, O. 1990. Isoenzymanalyse verschiedener populationen von *Pityogenes chalcographus* L. (Col., Scolytidae). II. Populationsstruktur. Populationsdifferenzierung. [Isoenzyme analysis of different populations of *Pityogenes chalcographus* L. (Col., Scolytidae). II. Population structure, population differentiation]. Journal of Applied Entomology 109:55–63.

Robert, A. 1948. Preliminary study of *Corthylus punctatissimus*, the pitted ambrosia beetle. Report of the Québec Society of Plant Protection 1948:113–117.

———. 1952. Research on insects of the elm. Report of the Department of Lands and Forests (Québec) 1950/51:141–146.

Roberts, H. 1989b. More new Platypodidae (Coleoptera) from Papua New Guinea. Linzer biologische Beiträge 21/1:261–289.

———. 1993. The tribe Diapodini (Coleoptera: Platypodidae) of Papua New Guinea. Bishop Museum Occasional Papers 35.

***Robertson, A.** 1993. Wind and wave forests: a case study and implications for silviculture. Pages 491–510 *In* J. Alden, J.L. Mastrantonio, and S. Odum (eds.). Forest development in cold climates. Proceedings of a NATO Advanced Research Workshop, June 18–23, 1991, Laugarvtn, Iceland. NATO ASI Series: Series A: Life Sciences. Plenum Press: New York.

Robertson, S. 1990. Point Pleasant Park, Halifax, Nova Scotia—Bark Beetle Survey. Halifax Field Naturalists. Halifax, Nova Scotia.

Roigas, P. 1975. Distribution and pest status of *Dendroctonus micans*. (In Estonian). Metsanduslikud Uurimused 12:280–293.

Roovers, L.M. and A.J. Robertus. 1993. Stand dynamics and conservation of an old-growth Engelmann spruce-subalpine fir forest in Colorado. Natural Areas Journal 13:256–267.

Ross, D.W. and G.E. Datertman. 1994. Reduction of Douglas-fir beetle infestation of high-risk stands by antiaggregation and aggregation pheromones. Canadian Journal of Forest Research 24:2184–2190.

Ross, D.W., P. Fenn, and F.M. Stephen. 1992a. Growth of southern pine beetle associated fungi in relation to the induced wound response in loblolly pine. Phytopathology 82:1136.

———. 1992b. Growth of southern pine beetle associated fungi in relation to the induced wound response in loblolly pine. Canadian Journal of Forest Research 22:1851–1859.

Ross, W.G., D.L. Kulhavy, and R.N. Conner. 1993. Evaluating susceptibility of red-cockaded woodpecker cavity trees to southern pine beetle in Texas. Pages 547–553 *In* Proceedings of the Seventh Biennial Southern Silvicultural Research Conference, Mobile, Alabama, November 17–19, 1992. United States Department of Agriculture, Forest Service, Southern Forest Experiment Station (New Orleans, LA). General Technical Report SO-93.

Rossnev, B., P. Petkov, and D. Georgiev. 1994. Importance and character of the tracheomycotic disease in the oak forest of Bulgaria. Nauka za Gorata 31:49–54.

Roth-Holzapfel, M. and W. Funke. 1990. Element content of bark-beetles (*Ips typographus* Linne, *Trypodendron lineatum* Olivier, Scolytidae): a contribution to biological monitoring. Biology and Fertility of Soils 9:192–198.

Rountree, K.R. 1989. The decline of the South Florida slash pine. Proceedings of the Annual Meeting of the Florida State Horticulture Society 101:118–120.

S

Saarenmaa, H. 1990. Frame- and rule-based knowledge representation in an expert system for integrated management of bark beetles. Silva Fennica 24:249–260.

Sacchetti, P., R. Tiberi, and L. Mittempergher. 1990. Preferenza di *Scolytus multistriatus* (Marsham) durante la fase di maturazione delle gonadi nei confronti di due specie di olmo. [Preference of *Scolytus multistriatus* (Marsham) during the gonad maturation phase between two species of elm]. Redia 73: 347–354.

Sadovnikova, T.P. and F.S. Kuteev. 1983. Determination of *Ips typographus* numbers with the aid of attractants. (In Russian). Lesnoe Khozyaistvo 12:51–52.

Safay, R.E. 1983. Intensity of bark beetle attack following prescribed understory burning in seral ponderosa pine stands in northern Idaho. Forestry Abstracts 44:720.

Safranyik, L., H.J. Barclay, and C.S. Simmons. 1990. A conceptual model of spruce beetle population dynamics. Forestry Canada. Canadian Forestry Service. Pacific Forestry Centre (Victoria. B.C.). Information Report BC-X-316.

Safranyik, L. and R. Garbutt. 1993. Spruce beetle. Natural Resources Canada. Canadian Forestry Service. Pacific and Yukon Region (Victoria. B.C.). Forest Pest Leaflet 13.

Safranyik, L. and D.A. Linton. 1991. Unseasonably low fall and winter temperatures affecting mountain pine beetle and pine engraver beetle populations and damage in the British Columbia Chilcotin Region. Journal of the Entomological Society of British Columbia 88:17–21.

———. 1993. Relationships between catches in flight and emergence traps of the mountain pine beetle, *Dendroctonus ponderosae* Hopk. (Col., Scolytidae). Journal of the Entomological Society of British Columbia 90:53–61.

Safranyik, L., D.A. Linton, R. Silversides, and L.H. McMullen. 1992a. Dispersal of released mountain pine beetles under the canopy of a mature lodgepole pine stand. Journal of Applied Entomology 113:441–450.

Safranyik, L., T.L. Shore, D.A. Linton, and B.S. Lindgren. 1992b. The effect of verbenone on dispersal and attack of the mountain pine beetle *Dendroctonus ponderosae* Hopk. (Col., Scolytidae) in a lodgepole pine stand. Journal of Applied Entomology 113: 391–397.

***Saha, N. and P.K. Maiti.** 1992. Faunal affinity and vertical distribution pattern of the scolytid beetles (Scolytidae, Coleoptera) of the sub-Himalayan West Bengal. Proceedings of the Zoological Society (Calcutta) 45(suppl. A): 399–410.

Salinas Moreno, Y., G. Zúñiga Bermúdez, and R. Cisneros Barrios. 1994. Chromosomal variation in Mexican populations of the genus *Dendroctonus* (Coleoptera: Scolytidae). Southwestern Naturalist 39:283–286.

Salom, S.M. 1992. EAG evaluations of potential kairomones for a southern pine beetle parasitoid. Page 30 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver, Colorado. March 25–28. 1991. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-294.

Salom, S.M. and J.A. McLean. 1990a. Dispersal of *Trypodendron lineatum* (Olivier) within a valley setting. The Canadian Entomologist 122:43–58.

———. 1990b. Flight and landing behavior of *Trypodendron lineatum* (Coleoptera: Scolytidae) in response to different semiochemicals. Journal of Chemical Ecology 16:2589– 2604.

———. 1991a. Environmental influences on dispersal of *Trypodendron lineatum* (Coleoptera: Scolytidae). Environmental Entomology 20: 565–576.

———. 1991b. Flight behavior of scolytid beetle in response to semiochemicals at different wind speeds. Journal of Chemical Ecology 17:647–661.

Salom, S.M., G. Birgersson, T.L. Payne, and C.W. Berisford. 1991. Electroantennogram responses of the southern pine beetle parasitoid *Dinotiscus dendroctoni* (Ashmead) (Hymenoptera: Pteromalidae) to potential semiochemicals. Journal of Chemical Ecology 17:2527–2538.

Salom, S.M., A. Ascoli-Christensen, G. Birgersson, T.L. Payne, and C.W. Berisford. 1992a. Electroantennogram responses of the southern pine beetle parasitoid *Coeloides pissodis* (Ashmead) (Hym., Braconidae) to potential semiochemicals. Journal of Applied Entomology 114:472–479.

Salom, S.M., R.F. Billings, W.W. Upton, M.J. Dalusky, D.M. Grosman, T.L. Payne, C.W. Berisford, and T.N. Shaver. 1992b. Effect of verbenone enantiomers and racemic endo-brevicomin on response of *Dendroctonus frontalis* (Coleoptera: Scolytidae) to attractant-baited traps. Canadian Journal of Forest Research 22:925–931.

Sampo, A. and M. Olmi. 1975. A new pest of ornamental palms: the scolytid *Dactylotrypes uyttenboogaarti* has reached Italy. Italia Agricola 112:102–105.

Santos, B.B. dos. 1988. Artrópodos associados as plantes cultivadas no estado do Parana. II. Coffee and manioc. [Arthropods associated with cultivated crops in the State of Parana. II. Coffee and manioc]. Revista do Setor de Ciencias Agrarias 10:27–28.

Santos, G.P., V.U. Anderson, J.C. Zanunico, and T.V. Zanunico. 1994. Damage by *Coccotrypes* sp. (Coleoptera: Scolytidae) in seeds of *Xylopia sericea* (Annonaceae). (In Portuguese). Cientifica (Jaboticabal) 22:111–116.

Saunders, M.C., D.K. Loh, T.L. Payne, E.J. Rykiel Jr., P.E. Pulley, R.N. Coulson, P.J.H. Sharpe, and L.C. Hu. 1985. Procedural guide for SPBDSS, the Southern Pine Beetle Decision Support System. Texas Agricultural Experiment Station (College Station, TX). Miscellaneous Publication 1579.

Sauvard, D. 1993. Reproductive capacity of *Tomicus piniperda* L. (Col., Scolytidae). 2. Analysis of the varius sister broods. Journal of Applied Entomology 116:25–38.

Scharpf, R.F. 1992. The role of pests in the ecology of pine-fir forests at South Lake Tahoe, California. Page 168 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference, Denver, Colorado, March 25–28, 1991. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

Schaupp, Jr., W.C. 1993. Emergence and overwintering brood of Douglas-fir beetle four years after the Clover Mist fire on the Clarks Fork Ranger District, Shoshone National Forest, Wyoming. United States Department of Agriculture, Forest Service, Forest Pest Management (Denver, CO). Biological Evaluation RCSC-94-01.

Schaupp, Jr., W.C., J.E. Pasek, J.M. Schmid, S.A. Mata, and C.K. Lister. 1993. Mountain pine beetle emergence from infested logs during hauling. United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station (Ft. Collins, CO). Research Note RM-522.

Schawaller, W. 1994. Die Käfersammlung am Naturkundemuseum Stuttgart. [The Coleoptera collection in the Natural History Museum Stuttgart]. Stuttgarter Beiträge zur Naturkunde, Serie A (Biologie) 508.

Schlyter, F. 1992. Sampling range, attraction range, and effective attraction radius: Estimates of trap efficiency and communication distance in coleopteran pheromone and host attractant systems. Journal of Applied Entomology 114:439–454.

Schlyter, F. and O. Anderbrant. 1993. Competition and niche separation between two bark beetles: Existence and mechanisms. Oikos 68: 437–447.

Schlyter, F. and J. Lofqvist. 1990. Colonization pattern in the pine shoot beetle, *Tomicus piniperda*: effects of host declination, structure and presence of conspecifics. Entomologia Experimentalis et Applicata 54:163–172.

Schlyter, F. and U. Lundgren. 1993. Distribution of a bark beetle and its predator within and outside old growth forest reserves: no increase of hazard near reserves. Scandinavian Journal of Forest Research 8:246–256.

Schlyter, F., G. Birgersson, J.A. Byers, and A. Bakke. 1992. The aggregation pheromone of *Ips duplicatus* and its role in competitive interactions with *I. typographus* (Coleoptera: Scolytidae). Chemoecology 3:103–112.

Schmid, J.M. and G.D. Amman. 1992. *Dendroctonus* beetles and old-growth forests in the Rockies. Pages 51–59 *In* Old-growth forests in the Southwest and Rocky Mountain Regions: Proceedings of a workshop, March 9–13, 1992, Portal, Arizona. United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station (Ft. Collins, CO). General Technical Report RM-213.

Schmid, J.M. and S.A. Mata. 1991. Red turpentine beetles in partially cut stands of ponderosa pine. United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station (Ft. Collins, CO). Research Note RM-505.

———. 1992. Stand density and mountain pine beetle-caused tree mortality in ponderosa pine stands. United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station (Ft. Collins, CO). Research Note RM-515.

Schmid, J.M., S.A. Mata, and D.C. Allen. 1992. Potential influences of horizontal and vertical air movement in ponderosa pine stands on mountain pine beetle dispersal. United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station (Ft. Collins, CO). Research Note RM-516.

Schmid, J.M., S.A. Mata, and R.A. Obedzinski. 1994. Hazard rating ponderosa pine stands for mountain pine beetles in the Black Hills. United States Department of Agriculture, Forest Service, Rocky Mountain Forest and

Range Experiment Station (Ft. Collins, CO). Research Note RM-529.

Schmid, J.M., S.A. Mata, and R.A. Schmidt. 1991. Bark temperature patterns in ponderosa pine stands and their possible effects on mountain pine beetle behavior. Canadian Journal of Forest Research 21:1439–1446.

———. 1992. Bark temperature patterns in mountain pine beetle susceptible stands of lodgepole pine in the central Rockies. Canadian Journal of Forest Research 22: 1669–1675.

Schmid, J.M., S.A. Mata, M.H. Martinez, and C.A. Troendle. 1991a. Net precipitation within small group infestations of the mountain pine beetle. United States Department of Agriculture. Forest Service. Rocky Mountain Forest and Range Experiment Station (Ft. Collins. CO). Research Note RM-508.

Schmid, J.M., S.A. Mata, R.K. Watkins, and M.R Kaufmann. 1991b. Water potential in ponderosa pine stands in different growing-stock levels. Canadian Journal of Forest Research 21:750–755.

Schmid, J.M., S.A. Mata, W.K. Olsen, and D.D. Vigil. 1993. Phloem temperatures in mountain pine beetle-infested Ponderosa Pine. United States Department of Agriculture. Forest Service. Rocky Mountain Forest and Range Experiment Station (Ft. Collins. CO). Research Note RM-521.

Schmitz, R.F. and M.D. McGregor. 1990. Antiaggregative effect of verbenone on response of the mountain pine beetle to baited traps. United States Department of Agriculture. Forest Service. Intermountain Research Station (Ogden, UT). Research Paper INT-423

Schmutzenhofer, H. 1993. Erfahrungen mit dem Aggregationspheromon des Kupferstechers *Pityogenes chalcographus* (L.) Col.: Scolytidae. [Experience with the aggregation pheromone of the spruce engraver *Pityogenes chalcographus* (L.) Col.: Scolytidae]. Centralblatt für das Gesemte Forstwesen 110:21–36.

Schneider, I. 1991. Einige okologische Aspekte der Ambrosiasymbiose. [Some ecological aspects of the ambrosia-symbiosis]. Anzeiger für Schädlingskunde. Pflanzenschutz. Umweltschutz 64:41–45.

Schönherr, J. 1994. Neue Borkenkäfer von Brasilien (Coleoptera: Scolytidae). [New Brazilian bark beetles (Coleoptera: Scolytidae)]. Deutsche Entomologische Zeitschrift (Neue Folge) 41:63–69.

Schönherr, J., K. Krautwurst, and W. Rossler. 1983. Insect pests in mature beech forests. (In German). Allgemeine Forstzeitschrift 1983(50):1361–1364.

Schopf, R., J. Stramm, and M. Doganlar. 1984. The possible dispersal of oak wilt *Ceratocystis fagacearum* by insect vectors in northern Germany. (In German). Forstarchiv 55:103–106.

Schott, C. 1986. Coléoptères Scolytides des Vosges du Nord 1984–1986. Bulletin de la Société Entomologique de Mulhouse. Octobre-Décembre:55–58.

* ———. 1994. Catalogue et Atlas des Coléoptères d'Alsace. Tome VI Scolytidae. Société alsacienne d'Entomologie. Musée zoologique de l'Université et de la Ville de Strasbourg:44.45 et 82.

Schott, C. and H.J. Callot. 1994. Trois coléoptères scolytides nouveaux pour la faune de France observes en Alsace (*Xyleborus peregrinus* Eggers, *Lymantor aceris* Lindemann, *Phloeotribus caucasicus* Reitter: Col. Scolytidae). Bulletin de la Société Entomologique de Mulhouse. Juillet-Septembre:7–70.

Schowalter, T.D. and G.M. Filip. 1993a. Beetle-pathogen interactions in conifer forests. Academic Press: London.

———. 1993b. Bark beetle-pathogen-conifer interactions: an overview. Pages 3–19 *In* T.D. Schowalter and G.M. Filip (eds.). Beetle-pathogen interactions in conifer forests. Academic Press: London.

Schowalter, T.D. and P. Turchin. 1993. Southern pine beetle infestation development: interaction between pine and hardwood basal areas. Forest Science 39:201–210.

Schreiber, J.-D. 1991. Ein System zur genetischen Kontrolle des Kupferstechers. *Pityogenes chalcographus* L. (Coleoptera. Scolytidae). Erzeugung und Isolierung von Translokationen sowie deren populationsdynamische Auswirkungen. [A system for genetic monitoring of *Pityogenes chalcographus* L. (Coleoptera, Scolytidae). Induction and isolation of translocations and their implications for population dynamics]. Forstliche Schriftenreihe—Universitat für Bodenkultur. Wien 4.

Schroeder, L.M. 1990a. Duct resin flow in Scots pine in relation to the attack of the bark beetle *Tomicus piniperda* (L.) (Col., Scolytidae). Journal of Applied Entomology 109:105–112.

* ———. 1990b. Odor recognition in *Tomicus piniperda* (Coleoptera: Scolytidae) and other bark beetles attacking Scots pine. (In Swedish). Vaxtsyddsnotiser 53:149.

———. 1991. Attraction of some scolytids and associated beetles to the host volatiles alphapinene and ethanol. Pages 393–395 *In* Y.N. Baranchikov, W.J. Mattson, F.P. Hain and T.L. Payne (eds.). Forest insect guilds: Patterns of interaction with host trees. United

States Department of Agriculture. Forest Service. Northeastern Forest Experiment Station (Radnor. PA). General Technical Report NE-153.

———. 1992. Olfactory recognition of nonhosts aspen and birch by conifer bark beetles *Tomicus piniperda* and *Hylurgops palliatus*. Journal of Chemical Ecology 18:1583–1593.

Schroeder, L.M. and J. Weslien. 1994a. Reduced offspring production in bark beetle *Tomicus piniperda* in pine bolts baited with ethanol and alpha-pinene, which attracts antagonistic insects. Journal of Chemical Ecology 20:1429–1444.

———. 1994b. Interactions between the phloem-feeding species *Tomicus piniperda* (Col.: Scolytidae) and *Acanthocinus aedilis* (Col.: Cerambycidae), and the predator *Thanasimus formicarius* (Col.: Cleridae) with special reference to brood production. Entomophaga 39: 149–157.

Schröter, H. 1991. Borkenkäferbekämpfung und -überwachung—Erfahrungen im Kalamitätsjahr in Baden-Württemberg. [Control and survey of bark beetles—practical experience in the storm calamity year in Baden-Württemberg]. Pages 18–27 *In* Alfred Wulf and R. Kehr (eds.). Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integreiten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Schultz, M., H. Waldmann, W. Vogt, and H. Kunz. 1990. Stereospecific c-c-bond formation with rabbit muscle aldolase-A chemoenzymatic synthesis of (+) exo-brevicomin. Tetrahedron Letters 31:867–868.

Schwenke, W. 1994. Über die Grundlagen der Entstehung und Begegnung von Insekten-Massenvermehrungen im Wald. [On the fundamentals of forest insect outbreaks and on counter-measures]. Anzeiger für Schädlingskunde. Pflanzenschutz. Umweltschutz 67: 120–124.

Schwert, D.P. 1992. Faunal transitions in response to an ice age: The late Wisconsinan record of Coleoptera in the north-central United States. The Coleopterists Bulletin 46:68–94.

Scrivani, J.A. 1983. Integrated pest management of southern pine beetle on multiple-use forestlands. Forestry Abstracts 44:712.

Scudder, G.E. 1994. An annotated systematic list of the potentially rare and endangered freshwater and terrestrial invertebrates in British Columbia. Entomological Society of British Columbia. Occasional Paper 2.

Senger, S.E. and B.D. Roitberg. 1992. Effects of parasitism by *Tomicobia tibialis* Ashmed (Hymenoptera: Pteromalidae) on reproductive parameters of female pine engravers, *Ips pini* (Say). The Canadian Entomologist 124: 509–513.

Serafim, R. 1992. Catalogue of the type-specimens of order Coleoptera (Insecta) from the collections of the "Grigore Antipa" Natural History Museum (Bucharest). Travaux du Muséum d'Histoire naturelle "Grigore Antipa" 32:193–196.

Setter, R.R. and J.H. Borden. 1992. Response by the striped ambrosia beetle, *Trypodendron lineatum* (Olivier), to the bark beetle pheromone, frontalin. The Canadian Entomologist 124:559–560.

Seybold, S.J. 1992. The status of scolytid systematics—a reductionist's view. Pages 12–13 *In* Jane L. Hayes and J.L. Robertson (eds.). Proceedings of a workshop on bark beetle genetics: current status of research. May 17–18. 1992. Berkeley. California. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-138.

———. 1993. Role of chirality in olfactory-directed behavior: aggregation of pine engraver beetles in the genus *Ips* (Coleoptera: Scolytidae). Journal of Chemical Ecology 19: 1809–1831.

Seybold, S.J., M. Nomura, and D.L. Wood. 1991. Aggregation behavior of the pine engraver beetle *Ips pini* Say in response to enantiomerically pure ipsdienol. Abstracts of Papers. American Chemical Society 201(1–2): AGRO 85.

Seybold, S.J., S.A. Teale, D.L. Wood, A.J. Zhang, F.X. Webster, K.Q. Lindahl Jr., and I. Kubo. 1992a. The role of lanierone in the chemical ecology of *Ips pini* (Coleoptera: Scolytidae) in California. Journal of Chemical Ecology 18:2305–2329.

Seybold, S.J., Y. Yokokawa, I. Kubo, T. Ohtsuka, M. Nomura, and D.L. Wood. 1992b. Analytical and preparative separation of the enantiomers of aggregation pheromone components of *Ips* species. Abstracts of Papers. American Chemical Society 203(1–3):ORGN 378.

Sharivastava, M. and M. Bihari. 1988. Insect pests of *Eucalyptus* and their management. Sri Lanka Forester 17:3–4.162–170.

Shaw, C.G. III. 1992. Modeling interactions among bark beetles, root pathogens, and conifers. Page 157 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver. Colorado. March 25–28. 1991. United States Department of Agriculture. Forest

Service. Pacific Northwest Research Station (Portland. OR). General Technical Report PNW-GTR-294.

Shaw, C.G. III and B.B. Eav. 1993. Modeling interactions. Pages 199–208 *In* T.D. Schowalter and G.M. Filip (eds.). Beetle-pathogen interactions in conifer forests. Academic Press: London.

Shea, P.J., technical coordinator. 1994a. Proceedings of the Symposium on Management of Western Bark Beetles with Pheromones: Research and Development, Kailua-Kona. Hawaii. June 22–25. 1992. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-150.

———. 1994b. Management of western bark beetles with pheromones: recent research and development. Pages 1–2 *In* Patrick J. Shea (tech. coord.). Proceedings of the Symposium on Management of Western Bark Beetles with Pheromones: Research and Development. Kailua-Kona. Hawaii. June 22–25. 1992. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-150.

Shea, P.J., M.I. Harverty, and G.E. Daterman. 1986. Impact of insects and methodology for monitoring insects in western pine seed orchards. Pages 147–155 *In* A. Roques. Proceedings of the 2nd Conference of the Cone and Seed Insects Working Party S2.07-01. September 3–5. 1986. Briancon. France. Station de Zoologie Forestière. Olivet. France.

Shea, P.J., E.H. Holsten, and J. Hard. 1991. Bole implantation of systemic insecticides does not protect trees from spruce beetle attack. Western Journal of Applied Forestry 6:4–7.

Shea, P.J., M.D. McGregor, and G.E. Daterman. 1992. Aerial application of verbenone reduces attack of lodgepole pine by mountain pine beetle. Canadian Journal of Forest Research 22:436–441.

Shea, P.J. and J.M. Wenz. 1994. Bark beetle research in California. Pages 46–52 *In* Patrick J. Shea (tech. coord.). Proceedings of the Symposium on Management of Western Bark Beetles with Pheromones: Research and Development. Kailua-Kona, Hawaii. June 22–25. 1992. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-150.

Shi, Jin-Lin and Chen Fang. 1990. Breeding behavior of the bark beetle *Scolytus schevyrewi* Semenov (Coleoptera. Scolytidae) in *Ulmus pumila*. Journal of Applied Entomology 109:528–530.

Shibata, E., Y. Waguchi, and Y. Yoneda. 1994. Seasonal flight of an ambrosia beetle. *Xyleborus validus* Eichhoff. in Japanese cedar stands. Applied Entomology and Zoology 29:593–594.

Shore, T.L. 1990. The development of systems for rating the risk and hazard to lodgepole pine stands of mountain pine beetle epidemics. Northwest Environmental Journal 6: 386–387.

———. 1992. Ambrosia beetles. Forestry Canada. Canadian Forestry Service. Pacific and Yukon Region (Victoria. B.C.). Forest Pest Leaflet 72.

Shore, T.L., P.M. Hall, and T.F. Maher. 1990. Grid baiting of spruce stands with frontalin for pre-harvest containment of the spruce beetle. *Dendroctonus rufipennis* (Kirby) (Col.. Scolytidae). Journal of Applied Entomology 109: 315–319.

Shore, T.L. and L. Safranik. 1992. Susceptibility and risk rating systems for the mountain pine beetle in lodgepole pine stands. Government of Canada. Canadian Forestry Service. Pacific Forestry Centre (Victoria. B.C.). Information Report BC-X-336.

Shore, T.L., L. Safranyik, and B.S. Lindgren. 1992. The response of mountain pine beetle *Dendroctonus ponderosae* to lodgepole pine trees baited with verbenone and exo-brevicomin. Journal of Chemical Ecology 18: 533–541.

Sigler, L., Y. Yamaoka, and Y. Hiratsuka. 1990. Taxonomy and chemistry of a new fungus from bark beetle infested *Pinus contorta* Var. *latifolia*. Part I. *Arthrographis pinicola* sp. nov. Canadian Journal of Microbiology 36:77–82.

Siitonen, J. 1990. Potential forest pest beetles conveyed to Finland on timber from the Soviet Union. Silva Fennica 24:315–321.

———. 1994. Decaying wood and saproxylic Coleoptera in two old spruce forests: a comparison based on two sampling methods. Annales Zoologici Fennici 31:89–95.

Simionescu, A. 1975. Studies on infestation by *Dendroctonus micans* in *Picea abies* stands. (In Rumanian). Revista Padurilor 90: 237–240.

Simsek, Z. and E. Führer. 1993. Kunstliches Nahr- und Brutmedium für *Ips typographus* L. (Col.. Scolytidae). [Artificial substrate for feeding and breeding of *Ips typographus* L. (Col.. Scolytidae)]. Journal of Applied Entomology 116:432–439.

Singh, S.P. and S. Ramani. 1994. Status of the coffee berry borer. *Hypothenemus hampei*

(Ferrari) (Coleoptera: Scolytidae). India, Project Directorate of Biological Control, ICAR, Bangalore: Biological Control Centre, National Centre for Integrated Pest Management. Technical Document 41.

Siverio, A. and M. Montesdeoca. 1990. *Coccotrypes dactyliperda* F., Coleóptero, escolytido parásito de semilleros de *Howea (Kentia) fosteriana* Becc. [*Coccotrypes dactyliperda* F., (Coleoptera) scolytid parasite of seed beds of *Howea (Kentia) fosteriana* Becc.]. Boletin de Sanidad Vegetal. Plagas 16:15–18.

Skatulla, U. and E. Feicht. 1992. Studies on the flight behaviour of *Pityogenes chalcographus* L. (Col., Scolytidae) and of some other insect species in connection with pheromone traps by aid of a new electronic instrument. (In German). Anzeiger für Schädlingskunde, Pflanzenschutz, Umweltschutz 65:4–7.

Skirkevicius, A. 1993. Plants and animals with pheromones found. Pheromones 2–3:43–148.

Slobodyanyuk, O.V. 1973. *Parasitorhabditis subelongati* (Rhabditida, Parasitorhabditinae), a new species of nematode from the bark beetle *Ips subelongatus*. (In Russian). Zoologischeskii Zhurnal 52:1070–1073.

Smalley, E.B. 1994. Hickory dying in Wisconsin associated with attack by *Scolytus quadrispinosus* and an undescribed *Ceratocystis* sp. Phytopathology 84:1122.

Smalley, E.B. and R.P. Guries. 1993. Breeding elms for resistance to Dutch elm disease. Pages 325–352 *In* R.J. Cook (ed). Annual Review of Phytopathology, Vol. 31. Annual Reviews, Inc.: Palo Alto, CA.

Smith, D., R. Mrowka, and J. Maupin. 1983. Underburning to reduce fire hazard and control *Ips* beetles in green thinning slash. Fire Management Notes 44(2):5–6.

Smith, M.T., T.L. Payne, and M.C. Birch. 1990. Olfactory-based behavioral interactions among five species in the southern pine bark beetle group. Journal of Chemical Ecology 16:3317–3331.

Smith, M.T., S.M. Salom, and T.L. Payne. 1993. The southern pine bark beetle guild: an historical review of the research on the semiochemical-based communication system of the five principal species. Bulletin of the Virginia Agricultural Experiment Station 93-94.

Smith, R.H. 1990. Direct control of western pine beetle (*Dendroctonus brevicomis* LeConte): review and assessment. United States Department of Agriculture, Forest Service, Pacific Southwest Research Station (Berkeley, CA). General Technical Report PSW-121.

Smith, R.N. and L.R. Boring. 1990. *Pinus rigida* coarse woody debris inputs and decomposition in pine beetle gaps of the southern Appalachians. Bulletin of the Ecological Society of America 71 (2 suppl.):329.

———. 1991. The impact of *Dendroctonus frontalis* on *Pinus rigida* dynamics in the southern Appalachians. Bulletin of the Ecological Society of America 72 (2 Suppl.):254.

Snellgrove, T.A. and S. Ernst. 1983. Veneer recovery from live and dead lodgepole pine. Forest Products Journal 33:21–26.

Solheim, H. 1988. Pathogenicity of some *Ips typographus*-associated blue-stain fungi to Norway spruce. Meddelelser fra Norsk Institutt for Skogforskning 40.

———. 1991. Oxygen deficiency and spruce resin inhibition of growth of blue stain fungi associated with *Ips typographus*. Mycological Research 95:1387–1392.

———. 1992a. The early stages of fungal invasion in Norway spruce infested by the bark beetle *Ips typographus*. Canadian Journal of Botany 70:1–5.

———. 1992b. Fungal succession in sapwood of Norway spruce infected by the bark beetle *Ips typographus*. European Journal of Forest Pathology 22:136–148.

———. 1993. Fungi associated with the spruce bark beetle *Ips typographus* in an endemic area in Norway. Scandinavian Journal of Forest Research 8:118–122.

Solheim, H. and B. Långström. 1991. Blue-stain fungi associated with *Tomicus piniperda* in Sweden and preliminary observations on their pathogenicity. Annales des Sciences Forestières 48:149–156.

Solheim, H., B. Långström, and C. Hellqvist. 1993. Pathogenicity of the blue-stain fungi *Leptographium wingfieldii* and *Ophisotoma minus* to Scots pine: Effect of tree pruning and inoculum density. Canadian Journal of Forest Research 23:1438–1443.

Sower, L.L. 1994. Distribution of MCH and similar behavioral chemicals in the field after release from artificial sources. Pages 26–27 *In* Patrick J. Shea (tech. coord.), Proceedings of the Symposium on Management of Western Bark Beetles with Pheromones: Research and Development. Kailua-Kona, Hawaii. June 22–25, 1992. United States Department of Agriculture, Forest Service, Pacific Southwest Research Station (Albany, CA). General Technical Report PSW-GTR-150.

Spaaij, F., G. Weber, T. Aoki, and J.P. Van Der Walt. 1993. *Myxozyma nipponensis* Sp. Nov. (Candidaceae), a new species recovered from frass of *Ips typographus* f. *japonicus*

Niijima. Journal of General and Applied Microbiology 39:521–528.

Spears, B.M., R.A. McKinney, C.W. Dull, W.A. Nettleton, D.C. Kahle, and R.J. Uhler. 1992. Southern pine beetle demonstration areas. Page 165 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference. Denver, Colorado, March 25–28, 1991. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

Spears, B.M. and W.A. Nettleton. 1993. Use of a geographic information system in southern pine beetle management. United States Department of Agriculture, Forest Service, Northeastern Forest Experiment Station (Radnor, PA). General Technical Report NE-175:15–24.

Spiller, D.M. and K.A.J. Wise. 1982. A catalog (1860–1960) of New Zealand insects and their host plants. DSIR Science Information Division, DSIR Bulletin 231 (Wellington).

Splawa-Neyman, S. and Z. Owczarzak. 1987. Bluestain of oak sapwood caused by *Ceratocystis fagacearum*. (In Polish). Sprawozdania, Komisja Technologii Drewna (Poland) 2:2–8.

Sreedharan, K., M.M. Balakrishnan, and P.K. Bhat. 1992. *Callimerus* sp. (Coleoptera: Cleridae), a predator of the shot-hole borer, *Xylosandrus compactus* (Eichh.). Journal of Coffee Research 22:139–142.

Sreedharan, K., M.M. Balakrishnan, S.D. Samuel, and P.K. Bhat. 1991. A note on the association of wood boring beetles and a fungus with the death of silver oak trees on coffee plantations. Journal of Coffee Research 21: 145–148.

Sreedharan, K., M.M. Balakrishnan, C.B. Prakasan, and P.K. Bhat. 1994. Bio-ecology and management of coffee berry borer (*Hypothenemus hampei*). (Review). Indian Coffee 58:5–13.

Sri Esti Intari and Teguh Hardi TW. 1990. Percobaan efikasi beberapa insektisida sistemik terhadap kumbang ambrosia *Xyleborus destruens* Bldf. pada tanaman jati di Jember, Jawa Timur. [Efficacy of some systematic insecticides on *Xyleborus destruens* Bldf. ambrosia beetles attacking trunks of teak stands at Jember, East Java]. Buletin Penelitian Hutan (Forest Research Bulletin) 528:25–33.

Starzyk, J., M. Witrylak, M. Ossowska, P. Szwalko, and B. Waga. 1990. Badania nad wplywem grupowania murowych pulapek feromonowych z preparatem "Linoprax" na skutecznosc odlowow drwalnika paskowanego—*Trypodendron lineatum* (Ol.) (Col., Scolytidae) w Lesnym Zakldzie Doswiadczalnym w Krynicy (Beskid Sadecki). [Effect of grouping of pheromone pipe traps baited with "Linoprax" on their efficiency in catching *Trypodendron lineatum* (Ol.) (Col., Scolytidae) at Krynica Forestry Experimental Station (Sacz Beskidy)]. Zeszyty Naukowe Akademii Rolniczej im. Hugona Kollataja w Krakowie, Lesnictwo Krakow, Poland 19(236):115–125.

Stauffer, C., R. Leitinger, and E. Führer. 1992. Population genetics of spruce bark beetle *Ips typographus* (Col., Scolytidae) and related *Ips* species. Page 22 *In* Jane L. Hayes and J.L. Robertson (eds.). Proceedings of a workshop on bark beetle genetics: current status of research, May 17–18, 1992, Berkeley, California. United States Department of Agriculture, Forest Service, Pacific Southwest Research Station (Albany, CA). General Technical Report PSW-GTR-138.

Stauffer, C., R. Leitinger, Z. Simsek, J.D. Schreiber, and E. Führer. 1992. Allozyme variation among nine Austrian *Ips typographus* L. (Col., Scolytidae) populations. Journal of Applied Entomology 114:17–25.

Stephen, F. M. 1992. Southern pine beetle natural enemies in relation to infestation development. Page 31 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference, Denver, Colorado, March 25–28, 1991. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

Stephen, F. M., C.W. Berisford, D.L. Dahlsten, P. Fenn, and J.C. Moser. 1993. Invertebrate and microbial associates. Pages 129–153 *In* T.D. Schowalter and G.M. Filip (eds.). Beetle-pathogen interactions in conifer forests. Academic Press: London.

Stephen, F. M. and M.P. Lih. 1992. Development of functional models for southern pine beetle population prediction. Page 140 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference, Denver, Colorado, March 25–28, 1991. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

Stephen, F. M., M.P. Lih, and G.W. Wallis. 1989. Impact of arthropod natural enemies on *Dendroctonus frontalis* (Coleoptera: Scolytidae) mortality and their potential role in infestation growth. Pages 169–185 *In* David L. Kulhavy and Mitchel C. Miller. Potential for biological control of *Dendroctonus* and *Ips* bark beetles. Center for Applied Studies. School of Forestry. Stephen F. Austin State University. Nacogdoches. Texas.

Stewart, C.A. 1991. Evaluation of Douglas-fir seed mortality on the Clearwater National Forest. Idaho. Pages 165–170 *In* D.M. Baugartner and James E. Lotan (eds.). Interior Douglas-fir: the species and its management: Symposium proceedings. February 27 – March 1. 1990. Spokane. WA. Washington State University. Pullman. WA.

Sticklen, M.B., M.G. Bolyard, R.K. Hajela, and L.C. Duchesne. 1991. Molecular and cellular aspects of Dutch elm disease. Phytoprotection 72:1–14

Stock, A.J., J.H. Borden, and T.L. Pratt. 1994. Containment and concentration of infestations of the western balsam bark beetle. *Dryocoetes confusus* (Coleoptera: Scolytidae). using the aggregation pheromone exo-brevicomin. Canadian Journal of Forest Research 24: 483–492.

Stock, A.J., J.H. Borden, T.L. Pratt, H.D. Pierce Jr., and B.D. Johnston. 1990. Endo-brevicomin: an antiaggregation pheromone for the western balsam bark beetle. *Dryocoetes confusus* Swaine (Coleoptera: Scolytidae). The Canadian Entomologist 122:935–940.

Stock, M.W., G.D. Amman, and B.J. Bentz. 1992. Isozyme studies of bark beetle population genetics and systematics. Pages 7–9 *In* Jane L. Hayes and J.L. Robertson (eds.). Proceedings of a workshop on bark beetle genetics: current status of research. May 17–18. 1992. Berkeley. California. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-138

Stone, C. 1990. Parasitic and phoretic nematodes associated with *Ips grandicollis* (Coleoptera: Scolytidae) in New South Wales. Nematologica 36:478–480.

———. 1993. Survey of arthropods from billets of *Pinus* following infestation by *Ips grandicollis* (Eichhoff) (Coleoptera: Scolytidae) in northeastern New South Wales. Journal of the Australian Entomological Society 32: 289–296.

Stone, C. and J.A. Simpson. 1990. Species associations in *Ips grandicollis* galleries in *Pinus taeda*. New Zealand Journal of Forest Science 20:75–96.

———. 1991a. Effect of six chemicals on the insects. mites. nematodes and fungi associated with *Ips grandicollis* (Eichhoff) (Coleoptera: Scolytidae) in northeastern New South Wales. Journal of the Australian Entomological Society 30:21–28.

———. 1991b. Influence of cell viability of freshly felled *Pinus elliotti* on the subcortical community associated with *Ips grandicollis* (Coleoptera: Scolytidae). Canadian Journal of Forest Research 21:1006–1011.

Stone, W.E. and M.L. Wolfe. 1993. The impact of mountain pine beetle epidemics on wildlife habitat in lodgepole pine forests. Bulletin of the Ecological Society of America 74 (2 suppl.):446.

Storer, A.J. and P.L. Dallara. 1992. Pitch canker disease in California. California Department of Forestry and Fire Protection. Tree Notes 15.

Storer, A.J., T.R. Gordon, P.L. Dallara, and D.L. Wood. 1994. Pitch canker kills pines. spreads to new species and regions. California Agriculture 48(6):9–13.

Strunz, G.M., C-M Yu, L. Ya, P.S. White, and E.A. Dixon. 1990. Synthesis of a biologically active isomer of frontalin and some new products from acylative decarboxylation of 3-methyltricarballylic acid. Canadian Journal of Chemistry 68:782–786.

Stuart, J.D., J.K. Agee, and R.I. Gara. 1989. Lodgepole pine regeneration in an old, self-perpetuating forest in south central Oregon. Canadian Journal of Forest Research 19: 1096–1104.

Su, S.Y. and B. Zhou. 1988. Studies on bionomics and control of *Phloeosinus sinensis*. (In Chinese). Scientia Silvae Sinicae 24:239–242.

Sugai, T., H. Kakeya, and H. Ohta. 1990. Enzymatic preparation of enantiomerically enriched tertiary alpha-benzyloxy acid esters. Application to the synthesis of (S)-(–)frontalin. Journal of Organic Chemistry 55: 4643–4647.

Sugai, T. and H. Ohta. 1990. Biochemical preparation of (R)-sulcatol. Agricultural and Biological Chemistry 54:1577–1578.

Sukartana, P. 1989a. Keperidian dan rasio seks Keturunan kumbang ambrosia *Xyleborus ferrugineus* yang dipelihara pada media. [The fecundity and the progeny sex ratios of the ambrosia beetle *Xyleborus ferrugineus* reared on five wood species sawdust media]. Jurnal Penelitian Hasil Hutan 6:340–342.

———. 1989b. Kepekaan kayu karet terhadap kumbang penggerek. [Susceptibility of rubberwood to wood boring beetles]. Jurnal Penelitian dan Pengembangan Kehutanan 5:36–42.

• ———. 1990. Serangan kunbang ambrosia padai kayu sunkai (*Peronema canescens*). [Ambrosia beetle infestations on sunkai wood

(*Peronema canascens*)]. Jurnal Penelitian Hasil Hutan 7:71–75.

Sun, D.S., G.S. Yin, and S.C. Sheng. 1991. Study on the bionomics of *Platypus* sp. and its control. (In Chinese). Acta Phytophylacica Sinica 18:221–224.

Svestka, M. 1990. Electrodynamic application of pyrethroids to control bark beetles. (In Czech). Lesnictví (Prague) 36:315–328.

———. 1991. Controlling the occurrence of *Ips sexdentatus* using the synthetic pheromone Senoprax. (In Czech). Lesnictví (Prague) 37: 677–684.

Syme, P.D. 1990. Insect pest problems and monitoring in Ontario conifer plantations. Revue d'entomologie du Québec 35:25–30.

Szmidt, A. 1980. Possible control of *Blastophagus [Tomicus] piniperda* by spraying of unbarked Scots pine roundwood. I. (In Polish). Folia Forestalia Polonica. Serie A. Lesnictwo 24:157–165.

T

Taber, D.W. 1993a. Christmas tree growers need strategy for pine shoot beetles. Cooperative Extension Association of Allegany County, Belmont, NY. News and Views April/May. pp. 6–7.

———. 1993b. Pine shoot beetle situation demands business plan. Cooperative Extension Association of Allegany County, Belmont, New York. News and Views 1988-May 1993, p. 5.

Taber, D.W., G.W. Hudler, and E.R. Hoebeke. 1993. How to identify the common pine shoot beetle. Cornell Cooperative Extension, Riverhear, New York. Long Island Horticulture News.

Takahashi, O. and H. Saho. 1985. Notes on the Japanese rust fungi IX. Dissemination of *Chrysomyxa abietis* (Wallroth) Unger. Transactions of the Mycological Society of Japan 26:433–439.

Tang, X.C. and F.L. Sun. 1990. Study on DNA and polypeptides of a smallpox virus in *Dendroctonus armandi* Tsai et Li. (In Chinese). Microbiology (Beijing) 17:258–261.

Targamadze, K.M., I.A. Shavliashvili, A.L. Mukhashavria, B.V. Murusidze, and A.A. Zedginidze. 1975. Determining the economic effectiveness of forest pest control expenditure. (In Russian). VIII International Plant Protection Congress, Moscow. Volume II, Papers at Sessions 1–4. pp. 23–27.

Taylor, A.D., J.L. Hayes, L. Roton, and J.C. Moser. 1992. A phloem sandwich allowing attack and colonization by bark beetles (Coleoptera: Scolytidae) and associates. Journal of Entomological Science 27:311–316.

Teale, S.A. and B. Hager. 1992. Bark beetle genetics-an overview. Page 17 *In* Jane L. Hayes and J.L. Robertson (eds.). Proceedings of a workshop on bark beetle genetics: current status of research. May 17–18, 1992, Berkeley, California. United States Department of Agriculture, Forest Service, Pacific Southwest Research Station (Albany, CA). General Technical Report PSW-GTR-138.

Teale, S.A., B.J. Hager, and F.X. Webster. 1994. Pheromone-based assortative mating in a bark beetle. Animal Behaviour 48: 569–578.

Teale, S.A. and G.N. Lanier. 1991. Seasonal variability in response of *Ips pini* (Coleoptera: Scolytidae) to ipsdienol in New York. Journal of Chemical Ecology 17:1145–1158.

Teale, S.A., F.X. Webster, A. Zhang, and G.N. Lanier. 1991. Lanierone: A new pheromone component from *Ips pini* (Coleoptera: Scolytidae) in New York. Journal of Chemical Ecology 17:1159–1176.

———. 1992. Lanierone: a new pheromone component from *Ips pini* (Coleoptera: Scolytidae). Page 170 *In* Douglas C. Allen and L.P. Abrahamson (eds.). Proceedings: North American Forest Insect Work Conference, Denver, Colorado, March 25–28, 1991. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-294.

***Tenkacova, I. and J. Mituch.** 1988. Nematodofauna podkornikovitych (Scolytidae) na jedli bielej (*Abies alba* Mill.) z oblasti Pol'any. [Nematode fauna of bark beetles (Scolytidae) on silver fir (*Abies alba* Mill.) from the Pol'ana region]. Lesnicky Casopis 34: 125–131. (Citation may be incorrect).

Thapa, R.S. 1992. Studies of the wide-spread attack of Ambrosia beetle, *Platypus* sp., on provenance trial plots of *Acacia crassicarpa* in Sipitang District of Sabah, Malasia. Pages 31–34 *In* L.T. Carron and K.M. Aken (eds.). Breeding technologies for tropical acacias. Proceedings of an international workshop, Tawau, Sabah, Malasia 1–4 July 1991. ACIAR Proceedings Series 37.

Thapa, R.S. and P. Singh. 1990. Insect borers killing fire-scorched chir pine trees and their control in Nahan Forest Division, Himachal Pradesh. Indian Forester 116:375–380.

Thier, R.W. and J.C. Weatherby. 1991. Mortality of Douglas-fir after two semiochemical baiting treatments for Douglas-fir beetle (Coleoptera: Scolytidae). Journal of Economic Entomology 84:962–964.

Thoeny, W.T., A.E. Tiarks, J.L. Hayes, and J.R. Bridges. 1992. Marking the southern pine beetle (Coleoptera: Scolytidae) with rubidium within loblolly pine for dispersal studies. Environmental Entomology 21:1377–1385.

Thoeny, W.T., A.E. Tiarks, and M.L. Elliott-Smith. 1994. Optimization of graphite furnace atomic absorption technique for determination of rubidium in southern pine beetle, *Dendroctonus frontalis*, for mark-recapture studies. Pages 25–27 *In* Timothy G. Rials (ed). Symposium on current research in the chemical sciences: Proceedings of the 3rd Annual Southern Station Chemical Sciences Meeting. Alexandria, Louisiana, February 7–8, 1990. United States Department of Agriculture, Forest Service, Southern Forest Experiment Station (New Orleans, LA). General Technical Report SO-101.

Thomas, M.C. and W.N. Dixon. 1992. Pine shoot beetle, *Tomicus piniperda* (Linnaeus): A potential threat to Florida pines (Coleoptera: Scolytidae). Florida Department of Agriculture & Consumer Services, Entomology Circular 354. 2 pp.

Thompson, R.T. 1992. Observations on the morphology and classification of weevils (Coleoptera, Curculionoidea) with a key to major groups. Journal of Natural History 26:835–891.

Thomson, A.J. 1991. Simulation of mountain pine beetle (*Dendroctonus ponderosae* Hopkins) spread and control in British Columbia. Forestry Canada, Canadian Forestry Service, Pacific and Yukon Region (Victoria, B.C.). Information Report BC-X-329.

Tinelli, A. and G. Catena. 1992. Applicazione della fotografia aerea per indagini fitosanitarie della pineta. [Use of aerial photography in pine forest phytopathological studies]. Monte e Boschi 43:26–29.

del Tío, R. and M.E. Ocete. 1992. El aparato estridulador de *Platypus cylindrus* Fabr. (Col., Platypodidae). [The stridulatory mechanism of *Platypus cylindrus* Fabr. (Col., Platypodidae)]. Boletim de Sociedade Portuguesa de Entomologia 139:235.

del Tío, R., F.J. Soria, and M.E. Ocete. 1993. Estudio morfologico de la larva de *Platypus cylindrus* Fabricius (Coleoptera: Platypodidae). Elytron 7:37–47.

Tisdale, R.A. and T.E. Nebeker. 1992. Resin flow as a function of height along the bole of loblolly pine. Canadian Journal of Botany 70: 2509–2511.

Titovsek, J. 1983. Prispevek k poznavanju zoogeografije podlubnikov (Scolytidae) Slovenije. [Contribution to the knowledge of bark-beetles (Scolytidae) in Slovenia]. Zbornik gozdarstva in Lesarstva Ljubljana, Slovenia 23:387–438.

———. 1993a. Obvladovanje smrekovih lubadarjev. Zveza drustev inzenirjev in tehnikov gozdarstva in lesarstva Slovenije. Gozdarska zalozba.

———. 1993b. Lubadarji lahko unicijo gozdove. Zveza drustev inzenirjev in tehnikov gozdarstva in lesarstva Slovenije. Gozdarska zalozba.

Tomalak, M., H.E. Welch, and T.D. Galloway. 1990. Pathogenicity of Allantonematidae (Nematoda) infecting bark beetles (Coleoptera: Scolytidae) in Manitoba. Canadian Journal of Zoology 68:89–100.

Tomminen, J. and H. Akar. 1990. Infestation of four coleopteran species by the pine wood nematode *Bursaphelenchus xylophilus* (Nematoda, Aphelenchoididae) living in wood chips. Entomologica Fennica 1:171–174.

Torres, J.A. 1994a. Insects of the Luquillo Mountains, Puerto Rico. United States Department of Agriculture, Forest Service, Southern Forest Experiment Station (New Orleans, LA). General Technical Report SO-105.

———. 1994b. Wood decomposition of *Cyrilla racemiflora* in a tropical montane forest. Biotropica 26:124–140.

Tribe, G.D. 1990a. Phenology of *Pinus radiata* log colonization by the pine bark beetle *Hylastes angustatus* (Herbst) (Coleoptera: Scolytidae) in the south-western Cape Province. Journal of the Entomological Society of Southern Africa 53:93–100.

———. 1990b. Phenology of *Pinus radiata* log colonization and reproduction by the European bark beetle *Orthotomicus erosus* (Wollaston) (Coleoptera: Scolytidae) in the south-western Cape Province. Journal of the Entomological Society of Southern Africa 53:117–126.

———. 1991a. Phenology of three exotic pine bark beetle species (Coleoptera: Scolytidae) colonising *Pinus radiata* logs in the south-western Cape Province. South African Forestry Journal 157:27–31.

———. 1991b. Phenology of *Pinus radiata* log colonization by the red-haired pine bark beetle *Hylurgus ligniperda* (Fabricius) (Coleoptera: Scolytidae) in the south-western Cape Province. Journal of the Entomological Society of Southern Africa 54:1–7.

———. 1992. Colonization sites on *Pinus radiata* logs of the bark beetles, *Orthotomicus erosus*, *Hylastes angustatus* and *Hylurgus ligniperda* (Coleoptera: Scolytidae). Journal of the Entomological Society of Southern Africa 55:77–84.

Triplehorn, C.A. 1990. Review of the genus *Corticeus* (Coleoptera: Tenebrionidae) of America north of Mexico. Annals of the Entomological Society of America 83:287–306.

Troeng, E. and B. Långström. 1991. Gas exchange in young Scots pine following pruning of current shoots. Annales des Sciences Forestières 48:359–366.

Trofimov, V.N. and V.A. Lipatkin. 1989. The numbers of stem pests in healthy stands. (In Russian). Lesovedenie 1989(4):58–66.

Trojan, P., R. Bannkowska, E. Chudzicka, I. Pilipiuk, E. Skibinska, M. Sterzynska, and J. Wytwer. 1994. Secondary succession of fauna in the pine forests of Puszcza Bialowieska. Fragmenta Faunistica 37:3–104.

Trost, B.M. and M.S. Rodriguez. 1992. A synthesis of S-(−)-ipsenol from lactic acid. Tetrahedron Letters 33:4675–4678.

Tsankov, G. 1987. A new insect pest in Bulgaria. (In Bulgarian). Gorsko Stopanstvo 43:25.

———. 1989. The role of insect pests in the mass mortality of silver fir. (In Bulgarian). Gorsko Stopanstvo 45:26–27.

Tsankov, G. and P. Ganchev. 1988. Attack by *Dryocoetes (Anisandrus) dispar* on *Castanea mollissima* in Bulgaria. (In Bulgarian). Gorsko Stopanstvo 44:16–17.

Tsankov, G., P. Mirchev, and D. Ovcharov. 1994. Insect pests and their role in silver fir withering and decline in Bulgaria. (In Bulgarian). Nauka za Gorata 31(3):23–33.

Tsuneda, A., S. Murakami, L. Sigler, and Y. Hiratsuka. 1993. Schizolysis of dolipore-parenthesome septa in an arthroconidial fungus associated with *Dendroctonus ponderosae* and in similar anamorphic fungi. Canadian Journal of Botany 71:1032–1038.

Tunset, K., A.C. Nilssen, and J.Andersen. 1993. Primary attraction in host recognition of coniferous bark beetles and bark weevils (Col., Scolytidae and Curculionidae). Journal of Applied Entomology 115:155–169.

Turchin, P. 1990a. A model of dispersal with mortality for analyzing mark-recapture data. Bulletin of the Ecological Society of America 71 (2 suppl.):348–349.

———. 1990b. Rarity of density dependence or population regulation with lags? Nature (London) 344:660–663.

———. 1992. Empirical and theoretical analysis of population redistribution in the southern pine beetle. Bulletin of the Ecological Society of America 72 (2 suppl.):369.

*———. (in press). Movement of animals in congregations: an Eulerian analysis of bark beetle swarming. Pages — *In* K. Parrish, W.M. Hamner, and C.T. Prewitt (eds.). Animal aggregations: three-dimensional measurement and modeling. Cambridge University Press: Cambridge, U.K.

Turchin, P. and W.T. Theony. 1993. Quantifying dispersal of southern pine beetles with mark-recapture experiments and a diffusion model. Ecological Applications 3:187–198.

Turchin, P., P.L. Lorio, Jr., A.D. Taylor, and R.F. Billings. 1991. Why do populations of southern pine beetles (Coleoptera: Scolytidae) fluctuate? Environmental Entomology 20: 401–409.

Turgeon, J.J. 1994. Insects exploiting seed cones of *Larix* spp., *Picea* spp. and *Pinus* spp.: species richness and patterns of exploitation. Pages 15–30 *In* Jean J. Turgeon and P. de Groot (eds.). Biology, damage and management of seed orchard pests. Natural Resources Canada, Canadian Forest Service. Information Report FPM-X-89.

Tyeryent'ev, S.N. and L.A. Stolyarova. 1989. Survey of pests and diseases of cork oak from the Black Sea coastline of the Caucasus. (In Russian). Subtropicheskie Kul'tury 1:122–125.

U

Uchastnova, L.N. 1987. Scolytids as disease-spreading organisms. (In Russian). Zashchita Rastenii (Moscow) 1987(8):44–45.

Unger, L. 1993. Mountain pine beetle. Natural Resources Canada. Canadian Forestry Service. Pacific and Yukon Regions (Victoria, B.C.). Forest Pest Leaflet 78.

Urano, T. and N. Hijii. 1991. Factors causing the difference in parasitism pattern between two parasitoid wasps, *Atanycolus initiator* (Fabricius) and *Spathius brevicaudis* Ratzeburg (Hymenoptera: Braconidae), on subcortical beetles in Japanese pine trees. Applied Entomology and Zoology 26:425–434.

V

Vaccaro, N.C. 1986. A review of insects recorded on pine and eucalypt species in the mesopotamian area of Argentina (Entre Rios, Corrientes and Missiones). Pages 265–271 *In* Proceedings of the IUFRO World Congress, Ljubljana. Vol. 1.

Väisänen, R., O. Bistrom, and K. Heliövaara. 1993. Sub-cortical Coleoptera in dead pines and spruces: is primeval species composition maintained in managed forests? Biodiversity and Conservation 2:95–113.

Valenti, M.A., L.P. Abrahamson, and C.A. Maynard. 1990. Control of white pine cone beetle (Coleoptera: Scolytidae) with carbofuran granules in a New York State white pine seed orchard. Journal of Economic Entomology 83:2349–2351.

Valterova, I., B. Kalinova, M. Kniznek, A. Svatos, and J. Vrkoc. 1991. Main components of the aggregation pheromone of the Cuban bark beetle *Ips interstitialis*. Pages 113–116 *In* I. Hrdy. Insect chemical ecology. Proceedings of a conference held in Tábor, Czechoslovakia. 12–18 August 1990. SPB Academic Publishing: The Hague.

Van Hees, W.W.S. 1992. An analytical method to assess spruce beetle impacts on white spruce resources, Kenai Peninsula, Alaska. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). Research Paper PNW-RP-446.

Van Hees, W.W.S. and E.H. Holsten. 1994. An evaluation of selected spruce bark beetle infestation dynamics using point in time extensive forest inventory data, Kenai Peninsula, Alaska. Canadian Journal of Forest Research 24:246–251.

Van Hees, W.W.S. and F.R. Larson. 1991. Timberland resources of the Kenai Peninsula, Alaska 1987. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). Resource Bulletin PNM-180.

Vanderwel, D. 1994. Factors affecting pheromone production in beetles. Archives of Insect Biochemistry and Physiology 25:347–362.

Vanderwel, D. and A.C. Oehlschlager. 1992. Mechanism of brevicomin biosynthesis from z-6 nonen-2-one in a bark beetle. Journal of the American Chemical Society 114:5081–5086.

Vanderwel, D., G. Gries, S.M. Singh, J.H. Borden, and A.C. Oehlschlager. 1992. (E)- and (Z)-6-nonen-2-one: Biosynthetic precursors of *endo*-and *exo*-brevicomin in two bark beetles (Coleoptera: Scolytidae). Journal of Chemical Ecology 18:1389–1404.

Vaupel, O. 1991. Möglichkeiten der Verminderung von Borkenkäferschäden durch die Anwendung von Pheromonfallen. [Possibilities of reducing bark beetle damage by the use of pheromone traps]. Pages 80–93 *In* Alfred Wulf and R. Kehr (eds.). Borfenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integrieten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Vaupel, O. and V. Dubbel. 1985. Study on the optimization of trapping systems for improving mass-trapping of the engraver beetle (*Ips typographus*). Journal of Applied Entomology 99:52–59.

Veblen, T.T., K.S. Hadley, M.S. Reid, and A.J. Rebertus. 1991a. Methods of detecting past spruce beetle outbreaks in Rocky Mountain subalpine forests. Canadian Journal of Forest Research 21:242–254.

———. 1991b. The response of subalpine forests to spruce beetle outbreak in Colorado. Ecology 72:213–231.

Veblen, T.T., K.S. Hadley, E.M. Nel, T. Kitzberger, M. Reid, and R. Villalba. 1994. Disturbance regime and disturbance interactions in a Rocky Mountain subalpine forest. Journal of Ecology 82:125–135.

Vesechko, G.I. 1988. The problems that need to be solved for improvements of bark-beetle control. Journal of Applied Entomology 106: 1–12.

Vilas Boas, A.M. and S.B. Alves. 1988. Patogenicidae de *Beauveria* spp. e seu efieto associado ao inseticida monocrotofos sobre *Castnia licus* (Drury, 1770) (Lepidoptera: Castniidae). [Pathogenicity of *Beauveria* spp. and its effect associated with monocrotophos on *Castnia licus* (Drury, 1770) (Lepidoptera: Castniidae)]. Anais da Sociedade Entomologica do Brasil 17:305–332.

Villacorta, A. and J.F. Barrera. 1993. Nova dieta meridica para criacao de *Hypothenemus hampei* (Ferrari) (Coleoptera: Scolytidae). [New meridic diet for rearing *Hypothenemus hampei* (Ferrari) (Coleoptera: Scolytidae)]. Anais da Sociedade Entomologica do Brasil 22:405–409.

Villaneuva M., A.E., R. Dominguez Rivero, and J.L. Ayala Orduno. 1988. Prueba de insecticidas para el control de la broca del grano de café *Hypothenemus hampei* (Ferrari) (Coleoptera: Scolytidae) en el Soconusco, Chiapas. [Insecticide trials for the control of the coffee berry borer *Hypothenemus hampei* (Ferrari) (Coleoptera: Scolytidae) in Soconusco, Chiapas]. Revista Chapingo 8(60–61):31–33.

Vité, J.P. and E. Baader. 1991. Present and future use of semiochemicals in pest management of bark beetles. Journal of Chemical Ecology 16: 3031–3041.

Vité, J.P. and W. Francke. 1992. Research needs and technology transfer. Journal of Applied Entomology 114:212–215.

Vité, J.P., H.A. Volz, and M.R. Paiva. 1986. Semiochemicals in host selection and colonization of pine trees by the pine shoot beetle *Tomicus piniperda*. (In German). Naturwissenschaften 73:39–40.

Vitola, R.P. and G.E. Ozols. 1989. Problems of the protection of pine and spruce from harmful insects and diseases in the Latvian SSR. (In Russian). Pages 4–11 *In* Z.P. Spalvin'sh (ed). Zashchita sosny i eli v Latviiskoi SSR. Riga: USSR.

Volz, R. 1990. Dürrebelastung der Schweizer Wälder seit dem 16. Jahrhundert und Folgerungen im Hinblich auf die aktuellen "Waldschäden". [Drought stress in Swiss forests since the 16th century and conclusions with respect to current forest damage]. Bayerisches Landwirtschaftliches Jahrbuch 67(Spec. Iss. 1):21–28.

Voslilite, B.S. 1990. A new nematode species *Diplogasteroides sexdentati* Sp. N., and some biological data on the ectonematodes of the stenograph bark beetle. Pages 110–112 *In* M.D. Sonin. Helminths of Insects. E.J. Brill: Leiden.

———. 1975. Nematode infection rate in *Ips sexdentatus* in the Lithuanian SSR. (In Russian). Trudy-Gel'mintologicheskoi Laboratorii 25:13–17.

Vouland, G., J.F. Cornic, and P. DuMerle. 1990. Un cas de déperissement de jeunes Douglas lie à des attaques d'insectes (*Dioryctria mutatella*, Lepidoptera Pyralidae: *Pityogenes quadridens*. Coleoptere Scolytidae). [An example of young Douglas-fir dieback associated with insect attack (*Dioryctria mutatella*, Lepidoptera. Pyralidae and *Pityogenes quadridens*. Coleoptera. Scolytidae)]. Revue Forestière Française (Nancy) 42: 510–512.

Vouland, G. and D. Schvester. 1994. Bionomie et développement de *Dendroctonus micans* Kug. (Col., Scolytidae) dans le Massif central. [Bionomics and the development of *Dendroctonus micans* Kug. (Col., Scolytidae) in the Massif central]. Annales des Sciences Forestières (Paris) 51:505–519.

W

Wade, D.D., G.L. Debarr, L.R. Barber, and E. Manchester. 1989. Prescribed fire—a cost effective control for the white pine cone beetle. Pages 117–121 *In* D.C. Maiver, H. Auld, and R. Whitewood (eds.), Proceedings of the 10th Conference on Fire and Forest Meterology, April 17–21, 1989, Ottawa, Canada. Forestry Canada, Ottawa.

Wagner, M.R., T.W. Koerber, and J.M. Schmid. 1986. Insects affecting seed production of ponderosa pine (*Pinus ponderosae* Dougl. ex Laws) in the southwestern United States. Pages 69–81 *In* A. Roques, Proceedings of the 2nd Conference of the Cone and Seed Insects Working Party S2.07-01, September 3–5, 1986, Briancon, France. Station de Zoologie Forestière, Olivet, France.

Wainhouse, D. and P.A. Beech-Garwood. 1994. Growth and survival of *Dendroctonus micans* larvae on six species of conifer. Journal of Applied Entomology 117:393–399.

Wainhouse, D., D.J. Cross, and R.S. Howell. 1990. The role of lignin as a defence against the spruce bark beetle *Dendroctonus micans*: effect on larvae and adults. Oecologia 85: 257–265.

Wainhouse, D., T. Wyatt, A. Phillips, D.R. Kelly, M. Barghian, P. Beech-Garwood, D. Cross, and R.S. Howell. 1991. Response of the predator *Rhizophagous grandis* to host plant derived chemicals in *Dendroctonus micans* larval frass in wind tunnel experiments (Coleoptera: Rhizophagidae, Scolytidae). Chemoecology 2:55–63.

Wainhouse, D., P.A. Beech-Garwood, R.S. Howell, D. Kelly, and M.P. Orozco. 1992. Field response of predator *Rhizophagus grandis* to prey frass and synthetic attractants. Journal of Chemical Ecology 18:1693–1705.

Wajland, M. and M. Karaszewska. 1977. Experimental fertilizing before felling to protect unpeeled Scots pine logs from secondary insect pests and blue stain. Sylwan 121:1–8.

Walkinshaw, C.H., N.J. Hess, and T.J. Perry. 1993. Root anatomy and microflora of pine attacked by the southern pine beetle. Phytopathology 83:1411.

Wallner, W.E. and N.C. Leeling. 1968. Helicopter application of methoxychlor for elm bark beetle control. Michigan Agriculture Experiment Station, Quarterly Bulletin 50:16–422.

Walsh, R.G., F.A. Ward, and J.P. Olienyk. 1989. Recreational demand for trees in national forests. Journal of Environmental Management 28:255–268.

Walters, E.O. and D. Weldon. 1982c. Veneer recovery from green and beetle killed timber in east Texas. Texas Forest Service, Circular 257.

Wang, S. 1983. Transpiration stream velocity in Norway spruce trees attacked by bark beetles. Meddelelser fra Norsk Institutt for Skogforskning 38(10):1–8.

Waterhouse, D.F. and K.R. Norris. 1989. Biological control: Pacific prospects: supplement. Australian Centre for International Research (ACIAR). (Canberra). Monograph 12.

Webber, J.F. 1990. Relative effectiveness of *Scolytus scolytus*. *S. multistriatus* and *S. kirschii* as vectors of Dutch elm disease. European Journal of Forest Pathology 20:184–192.

Weber, B.C. and J.E. McPherson. 1991. Seasonal flight patterns of Scolytidae (Coleoptera) in black walnut plantations in North Carolina and Illinois. Coleopterists Bulletin 45:45–56.

Wegensteiner, R. and E. Führer. 1991. Zur hohenhahangigen Aktivitatsdynamik einiger Nadelholz- Borkenkäfer (Coleoptera. Scolytidae). [Flight activity of some conifer bark beetles in relation to altitude (Coleoptera. Scolytidae)]. Anzeiger für Schädlingskunde. Pflanzenschutz. Umweltschutz 64:25–34.

Weiser, J. and R. Wegensteiner. 1994. A new type of entomopoxvirus in the bark beetle *Ips typographus* (Coleoptera. Scolytidae) in Czechoslovakia. Zeitschrift für Angewandte Zoologie 80:425–434.

Welch, R.C. 1993. The Coleoptera of Monks Wood National Nature Reserve. Cambridgeshire (Vice County 31). Sixth Supplement. 1980–1990. Entomologist's Gazette 44: 275–283.

Werner, R.A. 1993. Response of the engraver beetle. *Ips perturbatus* to semiochemicals in white spruce stands of interior Alaska. United States Department of Agriculture. Forest Service. Pacific Northwest Research Station (Portland. OR). Research Paper PNW-RP-465.

———. 1994a. Research on the use of semiochemicals to manage spruce beetles in Alaska. Pages 15–21 *In* Patrick J. Shea (tech. coord.). Proceedings of the Symposium on Management of Western Bark Beetles with Pheromones: Research and Development. Kailua-Kona. Hawaii. June 22–25. 1992. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-150.

———. 1994b. Forest insect research in boreal forests of Alaska. Entomology 2:35–46.

Werner, R.A. and J.W. Hilgert. 1992. Effects of permethrin on aquatic organisms in a freshwater stream in south-central Alaska. Journal of Economic Entomology 85:860–864.

Werner, R.A. and E.H. Holsten. 1992. Effectiveness of sevin with or without diesel for remedial control of the spruce beetle (Coleoptera: Scolytidae) in infested spruce in Alaska. Journal of Economic Entomology 85:473–476.

Werner, R.A. and B.L. Illman. 1994. Response of Lutz. Sitka and white spruce to attack by *Dendroctonus rufipennis* (Coleoptera: Scolytidae) and blue stain fungi. Environmental Entomology 23:472–478.

Weslien, J. 1991. Influence of predators and parasitoids on bark beetle productivity. Page 396 *In* Y.N. Baranchikov. W.J. Mattson. F.P. Hain and T.L. Payne (eds.). Forest insect guilds: Patterns of interaction with host trees. United States Department of Agriculture. Forest Service. Northeastern Forest Experiment Station (Radnor. PA). General Technical Report NE-153.

———. 1992a. Effects on mass trapping on *Ips typographus* (L.) populations. Journal of Applied Entomology 114:228–232.

———. 1992b. Monitoring *Ips typographus* (L.) populations and forecasting damage. Journal of Applied Entomology 114:338–340.

———. 1992c. The arthropod complex associated with *Ips typographus* (L.) (Coleoptera. Scolytidae): species composition. phenology. and impact on bark beetle productivity. Entomologica Fennica 3:205–213.

———. 1994. Interactions within and between species at different densities of the bark beetle *Ips typographus* and its predator *Thanasimus formicarius*. Entomologia Experimentalis et Applicata 71:133–143.

Weslien, J. and A. Lindelow. 1990. Recapture of marked spruce bark beetles *Ips typographus* in pheromone traps using area-wide mass trapping. Canadian Journal of Forest Research 20:1786–1790.

Weslien, J. and J. Regnander. 1990. Colonization densities and offspring production in the bark beetle *Ips typographus* (L.) in standing spruce trees. Journal of Applied Entomology 109:358–366.

———. 1992. The influence of natural enemies on brood production in *Ips typographus* (Col. Scolytidae) with special reference to egg-laying and predation by *Thanasimus formicarius* (Col.: Cleridae). Entomophaga 37:333–342.

Westwood, A.R. 1991. A cost benefit analysis of Manitoba's intergrated Dutch elm disease management program 1975–1990. Proceedings of the Entomological Society of Manitoba 47:44–59.

White, P.R. and K.R. Hobson. 1993. Stereospecific antennal response by red turpentine beetle. *Dendroctonus valens* to chiral monoterpenes from ponderosa pine resin. Journal of Chemical Ecology 19:2193–2202.

White, P.S. 1987. Natural disturbance, patch dynamics, and landscape pattern in natural areas. Natural Areas Journal 7:14–22.

Whitehead, P.F. 1990. *Scolytus mali* (Bechstein) (Col., Scolytidae): variations on the theme of its habits. Entomologist's Monthly Magazine 126:204.

———. 1992a. The Coleoptera fauna from Broadway, Worcestershire. Entomologist's Monthly Magazine 128:47–50.

———. 1992b. The Coleoptera of the Triglav National Park, Slovenia. Entomologist's Gazette 43:227–231.

Wickman, B.E. 1990. The battle against bark beetles in Crater Lake National Park: 1925–34. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). General Technical Report PNW-GTR-259.

Wigger, H. 1993. Ökologische Bewertung von Räuber-Beifängen in Borkenkäfer-Lockstoffallen. [Ecological estimation of coleopterous predators caught in bark beetle pheromone traps]. Anzeiger für Schädlingskunde, Pflanzenschutz, Umweltschutz 66:68–72.

———. 1994. Die Reaktion der Frasskapazität des Borkenkäferräubers *Nemozoma elongatum* L. (Col., Ostomidae) im Imaginalstadium auf unterschiedliches Beuteangebot in künstlichen Gängen. [Response of adult feeding capacity of the bark beetle predator *Nemosoma elongatum* L. (Col., Ostomidae) to different prey quantities in artificial galleries]. Anzeiger für Schädlingskunde, Pflanzenschutz, Umweltschutz 67:8–13.

Wilhelm, U. 1991. Aspekte der chemischen Borkenkäferbekämpfung aus Sicht der Pflanzenschutzmittelhersteller. [Aspects of bark beetle control as seen by a producer of plant protection products]. Pages 153–154 *In* Alfred Wulf and R. Kehr (eds.). Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integreiten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Wilkening, A. 1991. Erforderliche Rückstandsversuche für Insektizide im Forst. [Necessary residue trials for insecticides used in forests]. Pages 198–201 *In* Alfred Wulf and R. Kehr (eds.). Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integreiten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Williams, C.B., D.L. Azuma, and G.T. Ferrell. 1992. Incidence and effects of endemic populations of forest pests in young mixed-conifer forests of the Sierra Nevada. United States Department of Agriculture, Forest Service, Pacific Southwest Research Station (Berkeley, CA). Research Paper PSW-RP-212.

Willits, S., R.O. Woodfin, Jr., and T.A. Snellgrove. 1990. Lumber recovery from dead ponderosa pine in the Colorado Front Range. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station (Portland, OR). Research Paper PNW-RP-428.

Wilson, J.L. 1993. Biological evaluation of a roundheaded pine beetle outbreak in the Pinaleno Mountains, Safford Ranger District, Coronado National Forest. United States Department of Agriculture, Forest Service, Southwestern Region (Alburquerque, NM). Forest Pest Management Report R-3, 93-1.

Wingfield, M.J. 1983. Association of *Verticicladiella procera* and *Leptographium terrebrantis* with insects in the Lake States. Canadian Journal of Forest Research 13:1238–1245.

Wingfield, M.J. and J.N. Gibbs. 1991. *Leptographium* and *Graphium* species associated with pine-infesting bark beetles in England. Mycological Research 95:1257–1260.

Wingfield, M.J. and W.J. Swart. 1994. Integrated management of forest tree diseases in South Africa. Forest Ecology and Management 65:11–16.

Winter, T.G. 1990. *Crypturgus subcribosus* Eggers (Col., Scolytidae). A bark beetle new to Britain. Entomologist's Monthly Magazine 126:209–211.

———. 1991a. Interceptions of exotic bark beetles (Col., Scolytidae) on timber imports into Great Britain, 1980–1988. Entomologist's Monthly Magazine 127:13–17.

———. 1991b. Pine shoot beetles and ball-rooted semi-mature pines. United Kingdom, Department of the Environment. Aboriculture Research Note 101.

———. 1992. A second record of *Crypturgus subcribrosus* Eggers (Col., Scolytidae) in Britain. Entomologist's Monthly Magazine 128:170.

Winter, T.G. and H.F. Evans. 1990. Insects and storm-damaged conifers. United Kingdom, Forestry Commission Research Division. Research Information Note 173.

Wisniewski, J. and W. Hirschmann. 1990. *Uropoda (Cilliba) sopronensis* sp. n. aus Ungarn (Acarina, Uropodina). [*Uropoda (Cilliba) sopronensis* sp. n. from Hungary (Acarina, Uropodina)]. Acta Zoologica Hungarica 36:157–161.

Wood, D.L., A.J. Storer, T.R. Gordon, S.J. Seybold, and M. Page. 1992. Biosystematics of *Ips mexicanus* and *Ips plastographus*

(Coleoptera: Scolytidae) and their fungal symbionts. Pages 10–11 *In* Jane L. Hayes and J.L. Robertson (eds.). Proceedings of a workshop on bark beetle genetics: current status of research. May 17–18. 1992. Berkeley. California. United States Department of Agriculture. Forest Service. Pacific Southwest Research Station (Albany. CA). General Technical Report PSW-GTR-138.

Wood. S.L. 1993. Revision of the genera of Platypodidae (Coleoptera). Great Basin Naturalist 53:259–281.

Wood. S.L., G.C. Stevens. and H.J. Lezama. 1991a. Los Scolytidae de Costa Rica: clave de géneros y de la subfamilia Hylesinae (Coleoptera). [The Scolytidae of Costa Rica: Key to genera and to the subfamily Hylesinae (Coleoptera)]. Revista de Biologia Tropical 39: 125–148.

———. 1991b. Scolytidae (Coleoptera) de Costa Rica II. Clave para la subfamilia Scolytinae. tribus: Scolytini. Ctenophorini. Micracini. Ipini. Dryocoetini. Xyleborini y Chryphalini. [Scolytidae (Coleoptera) from Costa Rica: Key to Scolytini. Ctenophorini. Micracini. Ipini. Dryocoetini. Xyleborini and Cryphalini]. Revista de Biologia Tropical 39:279–306.

———. 1992. Los Scolytidae (Coleoptera) de Costa Rica: Clave de la subfamilia Scolytinae. Tribu Corthylini. [The Scolytidae (Coleoptera) from Costa Rica: Key to the subfamily Corthylini]. Revista de Biologia Tropical 40: 247–286.

Wu. L.Y. 1990. Preliminary studies on bionomics and control of *Hylesinus eos*. (In Chinese). Forest Pest and Disease 2:12–13.

Wulf. A. 1991a. Über Art und Umfang der chemischen Borkenkäferbekämpfung. [On the use of pesticides against bark beetles]. Pages 126–133 *In* Alfred Wulf and R. Kehr (eds.). Borfenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integrieten Bekämpfung. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

———. 1991b. On the effectiveness of neem-extracts against bark beetles. Plant Research and Development 34:81–88.

Wulf. A. and R. Kehr (eds.). 1991. Borkenkäfer-Gefahren nach Sturmschäden: Möglichkeiten und Grenzen einer integrierten Bekämpfung. [Bark beetle hazards following storm damage. Possibilities and limits of intergrated control]. Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem 267.

Wulf. A., L. Pehl. and K.H. Brendes. 1993. Anwendungsmoglichkeiten systemischer Insektizide gegen Borkenkäfer—Neue Perspektiven? [New prospects for using systematic insecticide against bark beetles]. Forst und Holz 48:211–214.

Wulf. A. and U. Scheidemann. 1990. Zur Wirksamkeit von Neem-Extrakten gegen Borkenkäfer. [On the effectiveness of neem extracts against bark beetles]. Nachrichtenblatt des Deutschen Pflanzenschutzdienstes 42:118–122.

Wulf. A., J. Siebers. and R. Kehr. 1993. Zur Belastung von Fichtenholz und—rinde mit Cypermethrin und Lindan nach praxisüblicher Borkenkäferbekämpfung. [Contamination of spruce timber and bark after routine bark beetle treatment with cypermethrin and lindane]. Nachrichtenblatt des Deutschen Pflanzenschutzdienstes 45:172–175.

Wyatt. T.D., A.D.G. Phillips. and J.C. Grégoire. 1993. Turbulence. trees and semiochemicals: wind-tunnel orientation of the predator. *Rhizophagus grandis*. to its bark beetle prey. *Dendroctonus micans*. Physiological Entomology 18:204–210.

X

Xiao G. 1992. Forest insects of China. (In Chinese). (Scolytidae. pp.615–640). China Forestry Publishing House: Beijing. China.

Y

Yakaitis. B.Y. 1988. Species of Coleoptera found in pheromone traps for scolytids. (In Russian). Khemoretseptsiya Nasekomykh 10: 102–107.

Yamaguchi. T., K. Sasaki. and S. Matsuzaki. 1991. Reaction of Japanese larch inoculated with *Ceratocystis piceae*. Japan Forestry and Forest Products Research Institute. Annual Report of the Hokkaido Research Center 1989:75–79.

Yamaoka. Y., R.H. Swanson. and Y. Hiratsuka. 1990. Inoculation of lodgepole pine with four blue-stain fungi associated with mountain pine beetle. monitored by a heat pulse velocity (HPV) instrument. Canadian Journal of Forest Research 20:31–36.

Yanabe. T. 1993. Studies on pine defoliation by *Dendrolimus spectabilis* (Butler) and estimation of the larval density in Tohoku District. (In Japanese). Bulletin of the Forestry and Forest Products Research Institute 365: 67–108.

Yang Xing-ke and Sun Hong-quo. 1991. Catalogue of the insect type specimens preserved in the insect collections of the Institute of Zoology. Academia Sinica. Agriculture Press: Beijing. China.

Yanovskii, V.M. 1984. Impact of entomophages on the population dynamics of bark beetles. (In Russian). Chteniya Pamyati Nikolaya Aleksandrovicha Kholodkovskogo (Leningrad. USSR): Nauka (1982):25–53. (Translation. Environment Canada 251).

Yau, P. 1994. City of Melbourne's approach to elm tree management. Plant Protection Quarterly 9:55–57.

Ye Hui. 1986. The studies on the damages of the pine shoot beetle (Col.. Scolytidae) to the Yunnan pine. Journal of the Yunnan University 8:218–221.

———. 1991. On the bionomy of *Tomicus piniperda* in the Kunming region of China. Journal of Applied Entomology 112:366–369.

———. 1992a. Approach to the reasons of *Tomicus piniperda* (L.) population epidemic. Journal of the Yunnan University 14:211–215.

———. 1992b. A new method of rearing the bark beetles. Kunchong Zhishi 29:125.

———. 1994. Influence of temperature on the experimental population of the pine shoot beetle. *Tomicus piniperda* (L.) (Col.. Scolytidae). Journal of Applied Entomology 117:190–194.

Ye Hui and Li L-S. 1994. The distribution of *Tomicus piniperda* (L.) population in the crown of Yunnan pine during the shoot feeding period. (In Chinese). Acta Entomologica Sinica 37:311–316.

Yin H-F and Huang F-S. 1993. Coleoptera: Scolytidae. Pages 401–406 *In* Huang. C.-M. (ed). The Series of the Bioresources Expedition to the Longqi Mountain Nature Reserve: Animals of Longqi Mountain. China Forestry Publishing House: Beijing. China.

Yonker, C.R. 1990. Pheromone trapping applications for monitoring European elm bark beetle populations. Journal of Arboriculture 16: 148–152.

Yoshikawa, K. and M. Kasahara. 1991. Seasonal and spatial changes in the structure of the subcortical insect community in pine forests. Pages 397–400 *In* Y.N. Baranchikov, W.J. Mattson. F.P. Hain and T.L. Payne (eds.). Forest insect guilds: Patterns of interaction with host trees. United States Department of Agriculture. Forest Service. Northeastern Forest Experiment Station (Radnor. PA). General Technical Report NE-153.

Z

Zabecki, W. 1988. Role of cambio- and xylophagous insects in the process of decline of silver fir stands affected by the industrial air pollution in Ojcow National Park. (In Polish). Acta Agraria et Silvestria. Series Silvestris 27:17–30.

Zach, P. 1991. Anwendung von Photoeklektoren beim Studium der kambio-und xylophagen Coleopteran. [Use of photoeclectors in the study of cambio- and xylophagous beetles]. Anzeiger für Schädlingskunde. Pflanzenschutz. Umweltschutz 64:34–37.

Zadig, D. 1993. Exotic pine shoot beetle (*Tomicus piniperda*). University of California Cooperative Extension. Novato. CA. Growing Points 29(6):1–2.

Zanta, F. and A. Battisti. 1989. Notes on the distribution and biology of the elm bark beetles in northeastern Italy (Coleoptera. Scolytidae). Gortania Atti del Museo Friulano di Storia Naturale 11:189–206.

Zanuncio, J.C., M.A.L. Braganca, A.J. Laranjeiro, and M. Fagundes. 1993. Coleópteros associados à eucaliptocultura nas regiões de São Mateus e Aracruz. Espírito Santo. [Coleoptera associated with *Eucalyptus* in the regions of São Mateus and Aracruz. Espirito Santo]. Revista Ceres 40:584–590.

Zhang, Qing He and H. Niemeyer. 1992a. Morphological characteristics for sexing living adults of *Ips cembrae* (Heer) (Coleoptera: Scolytidae). (In Chinese). Pages 106–112 *In* M.G. Zhao. J.L. Shi. H.Y. Pan and Y.Y. Wang (eds.). [Collection of achievements on the technical cooperation project of P.R. China and F.R. Germany]. Ministry of Forestry. China.

———. 1992b. Morphological characteristics for sexing living adults of *Ips cembrae* (Heer) (Col.. Scolytidae). Journal of Applied Entomology 114:403–409.

Zhang, Qing He, J.A. Byers, and F. Schlyter. 1992a. Optimal attack density in the larch bark beetle. *Ips cembrae* (Coleoptera: Scolytidae). Journal of Applied Ecology 29:672–678.

Zhang, Qing He, J.A. Byers, and F. Schlyter. 1992b. Optimal attack density in the larch bark beetle. *Ips cembrae* (Coleoptera: Scolytidae). (In Chinese). Pages 93–106 *In* M.G. Zhao. J.L. Shi. H.Y. Pan and Y.Y. Wang (eds.). Collection of achievements on the technical cooperation project of P.R. China and F.R. Germany. Ministry of Forestry. China.

Zhao, J.N., J. Ying, and B. Chao. 1988. A preliminary study on *Phloeosinus sinensis*. (In Chinese). Forest Research 1:186–190.

Zhong, H., F.L. Hastings, and F.P. Hain. 1994. Detection and quantification of trace levels of carbaryl and its metabolites from *Dendroctonus frontalis* Zimmermann. Journal of Agricultural and Food Chemistry 42:949–953.

Zhong, H., F.L. Hastings, F.P. Hain, and R.A. Werner. 1994. Toxicity of carbaryl toward the southern pine beetle in filter paper, bark and cut bolt bioassays. Journal of Entomological Science 29:247–253.

Zimmerman, E.C. November 14, 19961992. Australian Weevils. Volume VI. Colour Plates 305–632. CSIRO: Canberra, Australia.

Zolubas, P.I. 1988. The role of various doses of pheromone components in take-off flight of the spruce bark beetle (*Ips typographus* (L.)). (In Russian). Khemoretseptsiya Nasekomykh 10:71–75.

Zolubas, P.I. and A. Skirkevicius. 1993. Impact of wind speed on the behaviour of spruce bark beetle. *Ips typographus* (L.). Pheromones 2/3: 23–30.

Zuber, M. 1994. Racemate and enantiomers of ipsdienol for attracting *Ips amitinus* (Eichh.) (Col., Scolytidae). (In German). Anzeiger für Schädlingskunde. Pflanzenschutz. Umweltschutz 67:92–93.

Zuber, M. and G. Benz. 1992. Untersuchungen uber das Schwarmverhalten von *Ips typographus* (L.) und *Pityogenes chalcographus* (L.) (Col., Scolytidae) mit den Pheromonpraparaten Pheroprax und Chalcoprax. [Investigations on the flight behaviour of *Ips typographus* (L.) and *Pityogenes chalcographus* (L.) (Col., Scolytidae) by means of the pheromone preparations Pheroprax and Chalcoprax]. Journal of Applied Entomology 113: 430–436.

Zuber, M., H. Meyer, U. Kohnle, and W. Francke. 1993. Odour production and pheromone response in the European engraver bark beetles, *Ips amitinus* (Eichh.) and *Ips amitinus* var. *montana* Fuchs (Col., Scolytidae). Journal of Applied Entomology 115:462–465.

Zumr, V. 1990a. The flight of the eight-toothed bark beetle, *Ips typographus* (L.) (Coleoptera, Scolytidae) in an open landscape. (In Czech). Lesnictvi (Prague) 36:221–228.

———. 1990b. The migration of spruce beetle, *Ips typographus* (L.) (Coleoptera, Scolytidae) in spruce stands. (In Czech). Lesnictvi (Prague) 36:449–455.

———. 1991. The behaviour of spruce beetle, *Ips typographus* (L.) (Coleoptera, Scolytidae) during flight time in mixed forest stands. (In Czech). Lesnictvi (Prague) 37:669–675.

———. 1992a. Attractiveness of introduced conifers to xylophagous beetles and their acceptance. Journal of Applied Entomology 113:233–238.

———. 1992b. Dispersal of the spruce bark beetle *Ips typographus* (L.) (Col., Scolytidae) in spruce woods. Journal of Applied Entomology 114:348–352.

Zumr, V. and P. Stary. 1991. Effects of baited pitfall traps on non-target forest insects. Journal of Applied Entomology 112:525–530.

Zuniga, G., M. Gonzalez-Herrera, H. Fernandez-Arias, and R. Cisneros Barrios. 1994. [Study of the anatomy and histology of the digestive tract of *Dendroctonus adjunctus* Blandford (Coleoptera: Scolytidae)]. Acta Zoologica Mexicana Nueva Serie 0(62): 23–35.